

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.11.94  
Test oil : ISO 4113  
Combination No. : 0402638806  
Injection pump  
Pump designation : PE8P120A120RS7219  
EP type number : 0412628846  
Governor  
Governor design. : RQV275...1150PA908  
: -1  
Governor no. : 0421813875  
Cust. part No. :

Customer-spec. information  
Customer : PERKINS  
Motor : CV8  
Power KW : 800.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 1688901019  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1680750067  
Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.35  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 3- 6- 5- 4  
: - 8- 7- 2

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 900  
Rack travel in mm : 11.55  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 311.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1200

Rack travel in mm : 16.50  
Tolerance mm : +- 1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 311.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### RATED SPEED

control lever  
position degree : 122.0  
tolerance degree : +- 4.0

rack travel mm : 10.55  
Rated speed rpm : 1195  
Tolerance 1/min : +- 5

rack travel mm : 4.00

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Rated speed rpm : 1285  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1400

#### LOW IDLE

control lever  
position degree : 87.0  
tolerance degree : +- 4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.20  
Tolerance mm : +- 0.10

Rated speed rpm : 100  
CRT mm min. : > 1.50

#### CONTINUOUS-ACTION CONTR \_

Rated speed rpm : 313

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 11.55  
Tolerance mm : +- 0.05

Rated speed rpm : 600  
rack travel mm : 11.55  
Tolerance mm : +- 0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 11.55  
Tolerance mm : +- 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.90  
Tolerance mm : +- 0.10



Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 850  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

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#### START CUT-OUT

Rated speed rpm : < 100  
Rated speed rpm : > 195

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 320.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### BREAKAWAY

Rack travel in mm : 10.55  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.11.94  
Test oil : ISO 4113

Combination No. : 0400074779

Injection pump  
Pump designation : PES4M55C320RS187  
EP type number : 0410054936

Governor  
Governor design. : RSF375/2300M56-10  
Governor no. : 0420021130

Cust. part No. :

## Customer-spec. information

Customer : MB-PKW  
Motor : OM601-Abgl. MJ90  
Power KW : 53.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1469990351

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test Lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

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x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1

°NW after s.o.d. : 17.0  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance

cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 375

Rack travel in mm : 6.50

Tolerance mm : ± 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 6.5

Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 6.50

Tolerance mm : ± 0.10

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity

cm<sup>3</sup>/1000 strokes : 33.5

Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance

cm<sup>3</sup>/1000S. : ± 1.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance

cm<sup>3</sup>/1000S. : 3.0

##### RATED SPEED

control lever

position degree : 50.0

rack travel mm : 8.50

Rated speed rpm : 2500

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 2950

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900

CRT mm max. : 1.45

##### LOW IDLE

control lever

position degree : 14.0

tolerance degree : ± 2.0

Setting point w/out bumper spring

Rated speed rpm : 375

rack travel mm : 6.50

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 450

rack travel mm : 0.90

Tolerance mm : ± 0.10

rack travel mm : 2.50

Rated speed rpm : 670

Tolerance 1/min : ± 50

##### Load pick-up

Rated speed rpm : 250

CRT mm min. : > 11.00

Rated speed rpm : 900

CRT mm max. : 1.45

rack travel mm : 6.50

Rated speed rpm : 375

##### TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 12.35

Tolerance mm : ± 0.05

Rated speed rpm : 1400

rack travel mm : 12.05

Tolerance mm : ± 0.10

Rated speed rpm : 2300

rack travel mm : 11.40

Tolerance mm :  $\pm$  0.10

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#### ADJUSTMENT TEST ADA/ALDA

##### SETTING

Rated speed rpm : 900  
Ref. pressure  
ALDA / ADA hPa : 950  
rack travel mm : -0.10  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 900  
Ref. pressure  
ALDA / ADA hPa : 900  
rack travel mm : -0.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -2.00  
Tolerance mm :  $\pm$  0.20

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#### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 1400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.8  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.8  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 2300  
Spreed  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

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##### HIGH IDLE

Rated speed rpm : 2500  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

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##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

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##### LOW IDLE

Rated speed rpm : 375  
rack travel mm : 6.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.3  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

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##### CHECKING THE IDLE-SPEED AUXILIARY

degree : > 49.00  
degree : < 46.50

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SETTING PNEUMATIC FAST IDLE (ELA)  
(PLA) POSITION

control lever  
position degree : VWL  
Rated speed rpm : 425  
  
Rack travel in mm : 8.90  
Tolerance mm :  $\pm$  0.80  
Vacuum hPa : 400.0  
Vacuum hPa : -

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SETTING/TESTING ELECTRONIC IDLE  
REGULATION (ELR)

control lever  
position degree : 14.0  
tolerance degree :  $\pm$  2.0

control lever  
position degree : 50.0

Adjustment of the control-rod travel  
sensor

control lever  
position degree : 50.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.11.94  
Test oil : ISO 4113

Combination No. : 0400074882

Injection pump  
Pump designation : PES4M55C32ORS184  
EP type number : 0410054938

Governor  
Governor design. : RSF375/1700M77-1  
Governor no. : 0420021275

Cust. part No. :

Customer-spec. information  
Customer : MB-PKW  
Motor : OM601-2.3L  
Power KW : 50.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1469990351

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : + 1.5

Test Lines : 1680750014

Outside diameter : 4.5

x inside diameter : 2.0

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x length mm : 434

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 2.05  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 21.00  
Tolerance mm : + 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1

°NW after s.o.d. : 16.5  
Tolerance : + 0.20  
Check  
tolerance °NW : + 0.30

## BASIC SETTING

Rated speed rpm : 1700

Rack travel in mm : 11.50  
Tolerance mm : + 0.05

Del. quantity  
cm3/1000 strokes : 39.0

Tolerance  
cm3/1000 strokes : + 0.5

Check tolerance  
cm3/1000s. : + 1.5

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## Spreed

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### Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

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### Check tolerance

cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 375

Rack travel in mm : 5.00

Tolerance mm : ± 0.10

### Del. quantity

cm<sup>3</sup>/1000 strokes : 6.5

### Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

### Spreed

### Tolerance

cm<sup>3</sup>/1000 strokes : 1.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

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### IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : ± 0.25

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### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1700

### Ref. pressure

ALDA / ADA hPa : -

### Del. quantity

cm<sup>3</sup>/1000 strokes : 39.0

### Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

### Check tolerance

cm<sup>3</sup>/1000S. : ± 1.5

### Spreed

### Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

### Check tolerance

cm<sup>3</sup>/1000S. : 3.0

---

### RATED SPEED

### control lever

position degree : 50.0

rack travel mm : 6.70

Rated speed rpm : 2000

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 2300

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### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

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### LOW IDLE

### control lever

position degree : 14.0

tolerance degree : ± 2.0

### Setting point w/out bumper spring

Rated speed rpm : 375

rack travel mm : 5.00

### SET IDLE AUXILIARY SPRING

Rated speed rpm : 450

rack travel mm : 5.60

Tolerance mm : ± 0.10

### Load pick-up

Rated speed rpm : 250

CRT mm min. : > 10.20

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.00

Rated speed rpm : 375

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### TORQUE CONTROL

Rated speed rpm : 1700

rack travel mm : 11.50

Tolerance mm : ± 0.05

Rated speed rpm : 1000

rack travel mm : 11.50

Tolerance mm : ± 0.10

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### ADJUSTMENT TEST ADA/ALDA

### SETTING

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 940  
rack travel mm : -0.20  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 900  
rack travel mm : -0.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -1.50  
Tolerance mm :  $\pm$  0.20

#### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

#### HIGH IDLE

Rated speed rpm : 2000  
rack travel mm : 6.70  
Tolerance mm :  $\pm$  0.25  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### LOW IDLE

Rated speed rpm : 375  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.3  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

#### CHECKING THE IDLE-SPEED AUXILIARY

degree : > 47.00  
degree : < 44.50

#### SETTING PNEUMATIC FAST IDLE (ELA) (PLA) POSITION

control lever  
position degree : VWL  
Rated speed rpm : 425

Rack travel in mm : 7.30  
Tolerance mm :  $\pm$  0.80  
Vacuum hPa : 400.0  
Vacuum hPa : -

#### SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever  
position degree : 14.0  
tolerance degree :  $\pm$  2.0



control lever  
position degree : 50.0

Adjustment of the control-rod travel  
sensor

control lever  
position degree : 50.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.09.94  
Test oil : ISO 4113  
Combination No. : 0401840777  
Injection pump  
Pump designation : PE12P120A520/4LS3840  
EP type number : 0411820724  
Governor  
Governor design. : RQV250...900PA1198  
Governor no. : 0421814117

Cust. part No. :

Customer-spec. information  
Customer : DAEWOO  
Motor : D2842LE  
Power KW : 440.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 1688901105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Lube oil : 1409918004  
Test lines : 1680750089  
Outside diameter : 8.0

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x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 5.50  
Tolerance mm : ± 1.50

Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6- 7

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 12

## BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 11.40  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.0

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Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

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Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

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Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

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Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

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Del. quantity  
cm<sup>3</sup>/1000 strokes : 41.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0

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Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

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#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1150

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

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#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

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#### RATED SPEED

control lever  
position degree : 66.0  
tolerance degree : + 4.0

rack travel mm : 10.40  
Rated speed rpm : 945  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1050  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1150

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#### LOW IDLE

control lever  
position degree : 2.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 7.40  
Tolerance mm : + 0.10

Rated speed rpm : 200  
CRT mm min. : > 9.00

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#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 400

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#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 11.40  
Tolerance mm : + 0.05

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#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 150

Check  
speed 1/min : < 170

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

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#### BREAKAWAY

Rack travel in mm : 10.40  
Rated speed rpm : 945  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 41.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.11.94  
Test oil : ISO 4113

Combination No. : 0402640838

Injection pump  
Pump designation : PE12P120A520LS7829  
: --1  
EP type number : 0412620827

Governor  
Governor design. : RQV300...1150PA1039  
: -1K  
Governor no. : 0421815315

Cust. part No. : 3-7226

---

Customer-spec. information  
Customer : MAN  
Motor : D2842LE401  
Power KW : 735.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 2.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6- 7

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 12

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.85

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 305.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.24  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1206  
guide sleeve  
travel mm : 10.42  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 795  
guide sleeve  
travel mm : 6.88  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 329  
guide sleeve  
travel mm : 2.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 379  
guide sleeve  
travel mm : 3.53  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 4.21  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1450  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1280

Rack travel in mm : 12.80  
Tolerance mm :  $\pm$  2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 305.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
position degree : 120.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 12.80  
Rated speed rpm : 1203  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1325  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1450

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 6.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm min. :  $>$  8.30

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 330

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1300  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1150

Pressure hPa : 850  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 400  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  240  
Check  
speed 1/min :  $<$  260

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 257.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

Aneroid pressure  
hPa : 1 00  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 277.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.80  
Rated speed rpm : 1203  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0





# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.11.94  
Test oil : ISO 4113  
  
Combination No. : 0402640839  
  
Injection pump  
Pump designation : PE12P120A520LS7829  
: -1  
EP type number : 0412620827  
  
Governor  
Governor design. : RQV300...1150PA1039K  
Governor no. : 0421815314

Cust. part No. : 3-7227

Customer-spec. information  
Customer : MAN  
Motor : D2842LE402  
Power KW : 809.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0  
x inside diameter : 2.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6- 7

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 12

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.55  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 338.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.24  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1206  
guide sleeve  
travel mm : 10.43  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 795  
guide sleeve  
travel mm : 6.88  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 329  
guide sleeve  
travel mm : 2.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 379  
guide sleeve  
travel mm : 3.53  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 4.21  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1450  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

A20

control lever  
position degree : - 1  
Rated speed rpm : 1265

Rack travel in mm : 13.70  
Tolerance mm :  $\pm$  2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm3/1000 strokes : 338.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 120.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.80  
Rated speed rpm : 1203  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1450

##### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 6.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm min. : > 8.30

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 330

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1500  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1150

Pressure hPa : 850  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 400  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80

A21

Rated speed rpm : < 240  
Check  
speed 1/min : < 260

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 13.80  
Rated speed rpm : 1203  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.11.94  
Test oil : ISO 4113

Combination No. : 0402746809

Injection pump  
Pump designation : PES6P120A720RS7132  
EP type number : 0412726806

Governor  
Governor design. : RQ750PA836  
Governor no. : 0421801373

Cust. part No. :

Customer-spec. information  
Customer : PERKINS  
Motor : EAGLE LE  
Power KW : 240.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1680750075

Outside diameter : 8.0

x inside diameter : 2.5

A23

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 4- 2- 6- 3-  
: 5

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 279.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 761  
guide sleeve  
travel mm : 4.04  
Tolerance mm : + 0.25

Rated speed rpm : 920  
guide sleeve  
travel mm : 42.18  
Tolerance mm : + 0.25

Rated speed rpm : 800  
guide sleeve  
travel mm : 8.98  
Tolerance mm : + 0.25

Rated speed rpm : 807  
guide sleeve  
travel mm : 10.00  
Tolerance mm : + 0.25

Rated speed rpm : 860  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 279.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
position degree : 31.0  
tolerance degree : + 4.0

control lever  
position degree : 94.0  
tolerance degree : + 4.0

LOW IDLE

control lever  
position degree : 69.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 6.40  
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.85  
Tolerance mm : + 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : + 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.11.94  
Test oil : ISO 4113

Combination No. : 0402746967

Injection pump  
Pump designation : PES6P120A320RS7324  
EP type number : 0412726905

Governor  
Governor design. : RQ300/1200PA1132  
Governor no. : 0421801708

Cust. part No. : 51.11103-7296

## Customer spec. information

Customer : MAN  
Motor : D0826LF11/LFL03  
Power KW : 162.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.80  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 12.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
°NW after s.o.d. : 1.0

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 5.00

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 11.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 1000

Rack travel in mm : 12.45  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 199.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 300

Rack travel in mm : 5.50  
Tolerance mm : + 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.41  
Tolerance mm : + 0.10

Rated speed rpm : 1257  
guide sleeve  
travel mm : 6.37  
Tolerance mm : + 0.10

Rated speed rpm : 1200  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 425  
guide sleeve  
travel mm : 4.31  
Tolerance mm : + 0.10

Rated speed rpm : 530  
guide sleeve  
travel mm : 5.00  
Tolerance mm : + 0.10

Rated speed rpm : 1430  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

#### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 199.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



---

#### RATED SPEED

control lever  
position degree : 97.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 11.50  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1328  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.25  
Rated speed rpm : 1460

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 375  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 250

CRT mm min. :  $>$  6.50

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1200  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 700  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 140  
rack travel mm : 8.25  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  220  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 197.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm3/1000S. : +- 6.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm3/1000 strokes : 208.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 126.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 250  
Del. quantity  
cm3/1000 strokes : 93.0  
Tolerance  
cm3/1000 strokes : +- 20.0

---

#### BREAKAWAY

Rack travel in mm : 11.50  
Rated speed rpm : 1245  
Tolerance 1/min : +- 8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.00  
Del. quantity  
cm3/1000 strokes : 189.0  
Tolerance  
cm3/1000 strokes : +- 15.0  
Check tolerance  
cm3/1000S. : +- 19.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm : +- 0.20

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Del. quantity  
cm3/1000 strokes : 36.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.11.94  
Test oil : ISO 4113

Combination No. : 0402746984

Injection pump  
Pump designation : PES6P120A320RS7324  
EP type number : 0412726905

Governor  
Governor design. : RQV300...1200PA1131  
Governor no. : 0421814088

Cust. part No. : 51.11103-7330

## Customer-spec. information

Customer : MAN  
Motor : D0826LF11/LFL03  
Power KW : 162.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901103

Opening pressure  
bar : 207.0  
Tolerance bar : ± 3.0

Lube oil : 1409918004

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.80  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 12.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
°NW after s.o.d. : 1.0

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 5.00

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 1000

Rack travel in mm : 12.45  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 199.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 300

Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

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#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.69  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1263  
guide sleeve  
travel mm : 10.49  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 806  
guide sleeve  
travel mm : 5.85  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 347  
guide sleeve  
travel mm : 2.36  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 397  
guide sleeve  
travel mm : 1.01  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 440  
guide sleeve  
travel mm : 3.37  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1470  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1320

Rack travel in mm : 11.45  
Tolerance mm :  $\pm$  1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 199.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. : + 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

#### RATED SPEED

control lever  
position degree : 123.0  
tolerance degree : + 4.0  
  
rack travel mm : 11.45  
Rated speed rpm : 1245  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1340  
Tolerance 1/min : + 15

rack travel mm : 0.25  
Tolerance mm : + 0.25  
Rated speed rpm : 1500

---

#### LOW IDLE

control lever  
position degree : 83.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm : + 0.10

Rated speed rpm : 250

CRT mm min. : > 6.50

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 360

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.45  
Tolerance mm : + 0.05

Rated speed rpm : 1200  
rack travel mm : 12.45

Tolerance mm : + 0.10  
  
Rated speed rpm : 750  
rack travel mm : 12.45  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.45  
Tolerance mm : + 0.05

#### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 700  
rack travel mm : 11.25  
Tolerance mm : + 0.15

Pressure hPa : 0  
rack travel mm : 8.25  
Tolerance mm : + 0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 240  
Check  
speed 1/min : < 260

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm3/1000 strokes : 70.0  
Tolerance  
cm3/1000 strokes : + 8.0  
Check tolerance  
cm3/1000S. : + 11.0  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 9.0

Aneroid pressure  
hPa : 1500

Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 197.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0

---

#### BREAKAWAY

Rack travel in mm : 11.45  
Rated speed rpm : 1245  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 189.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.12.94  
Test oil : ISO 4113  
  
Combination No. : 0402046859  
  
Injection pump  
Pump designation : PES6P110A320LS3330  
EP type number : 0412016745  
  
Governor  
Governor design. : RQV350...1150PA1129K  
Governor no. : 0421815385

Cust. part No. : 1823109C91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DT-466  
Power KW : 141.5

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413076

Inlet press. bar : 2.8

Overflow quantity  
min. l/h : 250  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750015

Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 15.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
S.o.d. blocking  
Barrel no. : 1  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.35  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Anaroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### RATED SPEED

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  6.0

rack travel mm : 12.10  
Rated speed rpm : 1200  
Tolerance 1/min :  $\pm$  15

rack travel mm : 4.00  
Rated speed rpm : 1350  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1500

##### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree :  $\pm$  6.0

##### Testing:

Rated speed rpm : 325  
rack travel mm : 6.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 275

CRT mm min. :  $>$  7.30

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 435

##### TORQUE CONTROL

Rated speed rpm : 750  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.20

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1200  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 1150  
Pressure hPa : 350  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.20



Pressure hPa : 180  
rack travel mm : 11.80  
Tolerance mm : + 0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 280  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : 12.10  
Rated speed rpm : 1200  
Tolerance 1/min : + 15

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : + 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.12.94  
Test oil : ISO 4113  
Combination No. : 0402746980  
Injection pump  
Pump designation : PES6P120A320LS7328  
EP type number : 0412726908  
Governor  
Governor design. : RQV350...1250PA1136K  
Governor no. : 0421815402  
Cust. part No. : 1823108C91

Customer spec. information  
Customer : NAVISTAR  
Motor : DTA-408  
Power KW : 171.5

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413076

Inlet press. bar : 2.8

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0

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x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.90  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 11.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
S.o.d. blocking  
Barrel no. : 1  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1440

Rack travel in mm : 12.30  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### RATED SPEED

control lever  
position degree : 64.0  
tolerance degree : ± 4.0

control lever  
position degree : 120.0  
tolerance degree : ± 6.0

rack travel mm : 12.30

Rated speed rpm : 1320  
Tolerance 1/min : ± 15

rack travel mm : 4.00  
Rated speed rpm : 1480  
Tolerance 1/min : ± 5

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1550

##### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 6.0

control lever  
position degree : 16.5  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 325  
rack travel mm : 1.70  
Tolerance mm : ± 0.10

Rated speed rpm : 275

CRT mm min. : > 7.50

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 425

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 13.35  
Tolerance mm : ± 0.05

Rated speed rpm : 850  
rack travel mm : 12.50  
Tolerance mm : ± 0.10

Rated speed rpm : 650  
rack travel mm : 11.90  
Tolerance mm : ± 0.20

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1500  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Rated speed rpm : 1250  
  
Pressure hPa : 970  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.20  
  
Pressure hPa : 435  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 280  
Check  
speed 1/min : < 290

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 12.30

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Rated speed rpm : 1320  
Tolerance 1/min :  $\pm$  15

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  30.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
  
Combination No. : 0403466148  
  
Injection pump  
Pump designation : PES6MW100/120RS1137  
: -3  
EP type number : 0413406236  
  
Governor  
Governor design. : RSV550...1100MW2A335  
: -8  
Governor no. : 0420085244  
  
Cust. part No. : 392 9184

Customer-spec. information  
Customer : CDC  
Motor : 6CTA-830/2188E  
Power KW : 209.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1417433047  
  
Inlet press. bar : 1.5  
  
Test nozzle holde  
assembly : 1688901101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
  
Test lines : 1680750014  
  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 3.55  
Tolerance mm : + 0.05  
  
test only : + 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
°NW after s.o.d. : 9.0  
S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 9.0

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.60  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

2nd speed rpm : 550

Rack travel in mm : 6.60  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.55  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 2.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### RATED SPEED

control lever  
position degree : 92.0  
tolerance degree : + 4.0

rack travel mm : 13.60  
Rated speed rpm : 1180  
Tolerance 1/min : + 5

rack travel mm : 1.00  
Rated speed rpm : 1270  
Tolerance 1/min : + 5

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1350

rack travel mm : 4.00  
Rated speed rpm : 1280

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 550  
rack travel mm : 6.10  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 600  
Tolerance 1/min : + 30

##### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 15.40  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1000  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 15.40  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 620  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 470  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 181.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 13.60  
Rated speed rpm : 1180  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 550  
rack travel mm : 6.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.10.91  
Test oil : ISO 4113

Combination No. : 0400866145AK

Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9410230025

Governor  
Governor design. : RSV400...1100A0C2190  
: -35R  
Governor no. : 0420233242

Cust. part No. :

Customer-spec. information  
Customer : CDC  
Motor : 6 C 8.3 L  
Power KW : 112.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901017

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 28.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5



---

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

---

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 4.25

---

FULL LOAD DELIVERY AT FULL LOAD STOP

---

Rated speed rpm : 1200  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

RATED SPEED

---

control lever  
position degree : 99.0  
tolerance degree : + 4.0

rack travel mm : 10.40  
Rated speed rpm : 1245  
Tolerance 1/min : + 5

B15

rack travel mm : 4.00  
Rated speed rpm : 1315  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1470

---

LOW IDLE

---

control lever  
position degree : 74.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.90

Testing:

Rated speed rpm : 400  
rack travel mm : 5.40  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 550  
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

TORQUE CONTROL

---

Rated speed rpm : 1200  
rack travel mm : 11.35  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 11.40  
Tolerance mm : + 0.10

---

BREAKAWAY

---

Rack travel in mm : 10.40  
Rated speed rpm : 1245  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113

Combination No. : 0402648836

Injection pump  
Pump designation : PE8P120A920/4LS7125  
: -10T  
EP type number : 0412628890

Governor  
Governor design. : RQV200...950PA736-4  
Governor no. : 0421813646

Cust. part No. : 397963

Customer-spec. information  
Customer : SAAB-SCANIA  
Motor : DSC14 03 L09,L10

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750015

Outside diameter : 6.0

x inside diameter : 1.5

B17

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4  
: - 5- 6- 8

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Del. quantity  
cm<sup>3</sup>/1000 strokes : 222.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1040

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 222.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 115.0  
tolerance degree : + 4.0

rack travel mm : 12.80  
Rated speed rpm : 995  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1125  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1250

---

LOW IDLE

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control lever  
position degree : 65.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 225  
rack travel mm : 5.00  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 390  
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 6.50

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 13.85  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.80  
Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 325  
rack travel mm : 11.50  
Tolerance mm : + 0.10

Pressure hPa : 445  
rack travel mm : 12.95  
Tolerance mm : + 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.80  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.09.94  
Test oil : ISO 4113

Combination No. : 0400074880

Injection pump  
Pump designation : PES4M55C320RS186  
EP type number : 0410064007

Governor  
Governor design. : RSF375/2300M75-1  
Governor no. : 0420021163

Cust. part No. :

Customer spec. information  
Customer : MB-PKW  
Motor : OM601-ECE(W202)  
Power KW : 55.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1469990351

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

B20

x Length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 16.0  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

---

### Speed

### Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

---

### Check tolerance

cm<sup>3</sup>/1000S. : 3.0

---

2nd speed rpm : 375

Rack travel in mm : 6.60

Tolerance mm : ± 0.10

### Del. quantity

cm<sup>3</sup>/1000 strokes : 6.5

### Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

### Speed

### Tolerance

cm<sup>3</sup>/1000 strokes : 1.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

### IDLE STAGE

Rack travel in mm : 6.50

Tolerance mm : ± 0.10

---

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

### Ref. pressure

ALDA / ADA hPa : 1100

### Del. quantity

cm<sup>3</sup>/1000 strokes : 36.5

### Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

### Check tolerance

cm<sup>3</sup>/1000S. : ± 1.5

### Speed

### Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

### Check tolerance

cm<sup>3</sup>/1000S. : 3.0

---

### RATED SPEED

### control lever

position degree : 50.0

rack travel mm : 8.80

Rated speed rpm : 2500

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 2950

---

### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.95

---

### LOW IDLE

### control lever

position degree : 11.0

tolerance degree : ± 2.0

### Setting point w/out bumper spring

Rated speed rpm : 375

rack travel mm : 6.60

---

### SET IDLE AUXILIARY SPRING

Rated speed rpm : 500

rack travel mm : 1.80

Tolerance mm : ± 0.10

### Load pick-up

Rated speed rpm : 250

CRT mm min. : > 11.00

Rated speed rpm : 1000

CRT mm max. : 1.95

rack travel mm : 6.60

Rated speed rpm : 375

---

### TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.95

Tolerance mm : ± 0.05

Rated speed rpm : 1600

rack travel mm : 12.50

Tolerance mm : ± 0.10

Rated speed rpm : 2300

rack travel mm : 11.80

Tolerance mm : ± 0.10

---

## ADJUSTMENT TEST ADA/ALDA

### SETTING

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 940  
rack travel mm : -0.10  
Tolerance mm :  $\pm$  0.10

### MEASUREMENT

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 900  
rack travel mm : -0.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -1.50  
Tolerance mm :  $\pm$  0.20

---

### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 1600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.8  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.8  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 2300  
Spreed  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 37.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

---

### HIGH IDLE

Rated speed rpm : 2500  
rack travel mm : 8.80  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

---

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

### LOW IDLE

Rated speed rpm : 375  
rack travel mm : 6.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.2  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

---

### CHECKING THE IDLE-SPEED AUXILIARY

degree : > 49.00  
degree : < 46.50



---

SETTING PNEUMATIC FAST IDLE (ELA)  
(PLA) POSITION

control lever  
position degree : VWL  
Rated speed rpm : 425

Rack travel in mm : 9.00  
Tolerance mm :  $\pm$  0.80  
Vacuum hPa : 400.0  
Vacuum hPa : 400

---

SETTING/TESTING ELECTRONIC IDLE  
REGULATION (ELR)

control lever  
position degree : 11.0  
tolerance degree :  $\pm$  2.0

control lever  
position degree : 50.0

Adjustment of the control-rod travel  
sensor

control lever  
position degree : 50.0

---

ADJUST ACTIVE SURGE DAMPING ARD

Rated speed rpm : 1000  
rack travel mm : -1.70  
Tolerance mm :  $\pm$  0.15

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.09.94  
Test oil : ISO 4113

Combination No. : 0400074881

Injection pump  
Pump designation : PES4M55C320RS186  
EP type number : 0410064007

Governor  
Governor design. : RSF375/2300M56-12  
Governor no. : 0420021169

Cust. part No. :

## Customer-spec. information

Customer : MB-PKW  
Motor : OM601-D 20  
Power KW : 53.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1469990351

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test Lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1

°NW after s.o.d. : 16.0  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000s. : ± 1.5

Spreed

Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance

cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 375

Rack travel in mm : 6.60

Tolerance mm : ± 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 6.5

Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

Spreed

Tolerance

cm<sup>3</sup>/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 6.50

Tolerance mm : ± 0.10

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity

cm<sup>3</sup>/1000 strokes : 36.5

Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance

cm<sup>3</sup>/1000S. : ± 1.5

Spreed

Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance

cm<sup>3</sup>/1000S. : 3.0

##### RATED SPEED

control lever  
position degree : 50.0

rack travel mm : 8.80

Rated speed rpm : 2500

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 2950

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.95

##### LOW IDLE

control lever

position degree : 10.0

Setting point w/out bumper spring

Rated speed rpm : 375

rack travel mm : 6.60

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 500

rack travel mm : 4.80

Tolerance mm : ± 0.10

##### Load pick-up

Rated speed rpm : 250

CRT mm min. : > 11.00

Rated speed rpm : 1000

CRT mm max. : 1.95

rack travel mm : 6.60

Rated speed rpm : 375

##### TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.95

Tolerance mm : ± 0.05

Rated speed rpm : 1600

rack travel mm : 12.50

Tolerance mm : ± 0.10

Rated speed rpm : 2300

rack travel mm : 11.80

Tolerance mm : ± 0.10

##### ADJUSTMENT TEST ADA/ALDA

## SETTING

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 940  
rack travel mm : -0.10  
Tolerance mm :  $\pm$  0.10

## MEASUREMENT

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 900  
rack travel mm : -0.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -1.50  
Tolerance mm :  $\pm$  0.20

## FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 1600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.8  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.8  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 2300  
Spreed  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 37.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

## INTERMEDIATE RATED SPEED

Rated speed rpm : 1000

## HIGH IDLE

Rated speed rpm : 2500  
rack travel mm : 8.80  
Tolerance mm :  $\pm$  0.25  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

## LOW IDLE

Rated speed rpm : 375  
rack travel mm : 6.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.2  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

## CHECKING THE IDLE-SPEED AUXILIARY

degree : > 49.00

degree : < 46.50

---

SETTING PNEUMATIC FAST IDLE (ELA)  
(PLA) POSITION

control lever  
position degree : VWL  
Rated speed rpm : 425

Rack travel in mm : 9.00  
Tolerance mm :  $\pm$  0.80  
Vacuum hPa : 400.0  
Vacuum hPa : -

---

SETTING/TESTING ELECTRONIC IDLE  
REGULATION (ELR)

control lever  
position degree : 10.0

control lever  
position degree : 50.0

Adjustment of the control-rod travel  
sensor

control lever  
position degree : 50.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.12.94  
Test oil : ISO 4113

Combination No. : 0400866207

Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9410230025

Governor  
Governor design. : RSV400...1100A0C2190  
: -79R  
Governor no. : 0420233318

Cust. part No. : 3921 143

Customer-spec. information  
Customer : CDC  
Motor : 6 C 8.3  
Power kW : 129.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 28.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
°NW after s.o.d. : 10.0

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.65  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

2nd speed rpm : 400

Rack travel in mm : 5.60

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### RATED SPEED

C01

control lever  
position degree : 99.0  
tolerance degree : ± 4.0

rack travel mm : 9.65  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1205  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1300

rack travel mm : 4.00  
Rated speed rpm : 1210

##### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.10

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 500  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.50

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 10.65  
Tolerance mm : ± 0.05

##### BREAKAWAY

Rack travel in mm : 9.65  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 400  
rack travel mm : 5.60



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113

Combination No. : 0402036747

Injection pump  
Pump designation : PES6P110A120RS3296  
EP type number : 0412016738

Governor  
Governor design. : RQV400...1250PA1014  
: -1K  
Governor no. : 0421815291

Cust. part No. : 3921837

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTA-A  
Power kW : 130.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 1.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 6.0  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.05  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### RATED SPEED

control lever  
position degree : 59.0  
tolerance degree : + 4.0

rack travel mm : 12.00  
Rated speed rpm : 1300

C04

Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1455  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1580

##### LOW IDLE

control lever  
position degree : 15.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.30  
Tolerance mm : + 0.10

Rated speed rpm : 275

CRT mm min. : > 7.00

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 525

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 13.05  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 11.10  
Tolerance mm : + 0.10

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1200  
rack travel mm : 13.05  
Tolerance mm : + 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250

rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250

Pressure hPa : 565  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 255  
rack travel mm : 9.65  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  290  
Check  
speed 1/min :  $<$  300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 99.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 1300  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.12.94  
Test oil : ISO 4113  
  
Combination No. : 0402648868  
  
Injection pump  
Pump designation : PE8P120A720LS7180  
: -10  
EP type number : 0412628892  
  
Governor  
Governor design. : RQV350...1050PA795  
: -8  
Governor no. : 0421813770  
  
Cust. part No. : 1305130

Customer-spec. information  
Customer : SCANIA  
Motor : DSI 14

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1417413025  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1688901019  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test Lines : 1680750015  
  
Outside diameter : 6.0

C06

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Start-of-delivery setting with ROBO diaphragm.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4  
: - 5- 6- 8

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 269.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1325

Rack travel in mm : 8.50  
Tolerance mm : ± 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 269.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

##### RATED SPEED

control lever  
position degree : 47.0  
tolerance degree : ± 4.0

control lever  
position degree : 102.0  
tolerance degree : ± 4.0

rack travel mm : 12.20  
Rated speed rpm : 1095  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1230  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 4.0

control lever  
position degree : 16.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm : ± 0.30

Rated speed rpm : 250

CRT mm min. : > 6.00

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 300

##### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.25  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 215  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 365  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 262.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 12.20  
Rated speed rpm : 1095

C08

Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.12.94  
Test oil : ISO 4113  
  
Combination No. : 0402648972  
  
Injection pump  
Pump designation : PE8P120A720LS7189  
: -10  
EP type number : 0412628893  
  
Governor  
Governor design. : RQV350...1100PA795  
: -21  
Governor no. : 0421814079  
  
Cust. part No. : 1351804

---

Customer-spec. information  
Customer : SCANIA  
Motor : DSI14

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1417413025  
  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
  
Tolerance l/h : ± 20.0  
  
Test nozzle holde  
assembly : 1688901104  
  
Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5  
  
Lube oil : 1409918004

Test lines : 1680750008  
  
Outside diameter : 6.0  
  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

Start-of-delivery setting with ROBO diaphragm.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4  
: - 5- 6- 8

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

---

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

---

## BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 14.95  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 283.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.44  
Tolerance mm : + 0.20

Rated speed rpm : 1145  
guide sleeve  
travel mm : 8.46  
Tolerance mm : + 0.15

Rated speed rpm : 796  
guide sleeve  
travel mm : 5.34  
Tolerance mm : + 0.25

Rated speed rpm : 411  
guide sleeve  
travel mm : 2.06  
Tolerance mm : + 0.25

Rated speed rpm : 461

C10

guide sleeve  
travel mm : 2.64  
Tolerance mm : + 0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 3.19  
Tolerance mm : + 0.25

Rated speed rpm : 1390  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1200

Rack travel in mm : 14.00  
Tolerance mm : + 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 283.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### RATED SPEED

control lever  
position degree : 48.0  
tolerance degree : + 4.0

control lever  
position degree : 111.0  
tolerance degree : + 4.0

rack travel mm : 13.95  
Rated speed rpm : 1145  
Tolerance 1/min : + 5

rack travel mm : 4.00



Rated speed rpm : 1290  
Tolerance 1/min : + 15  
  
rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : + 4.0

control lever  
position degree : 15.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm : + 0.30

Rated speed rpm : 250  
  
CRT mm min. : > 7.70

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 325

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.95  
Tolerance mm : + 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 14.95  
Tolerance mm : + 0.05

#### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 450  
rack travel mm : 11.40  
Tolerance mm : + 0.25

Pressure hPa : 860  
rack travel mm : 13.65  
Tolerance mm : + 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 255.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : 13.95  
Rated speed rpm : 1145  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.20  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
  
Combination No. : 0402678824  
  
Injection pump  
Pump designation : PE8P120A720LS7189  
: -10  
EP type number : 0412628893  
  
Governor  
Governor design. : RSV350...1100P1A512  
: -5  
Governor no. : 0421833437  
  
Cust. part No. : 1357215

Customer-spec. information  
Customer : SCANIA  
Motor : DSC14 56A

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1417413025  
  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1688901104  
  
Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5  
  
Test Lines : 1680750008  
  
Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

## REMARKS

Start-of-delivery setting with ROBO diaphragm.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4  
: - 5- 6- 8

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 248.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 350

Rack travel in mm : 4.60  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 6.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 248.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### RATED SPEED

control lever  
position degree : 66.0  
tolerance degree : ± 4.0

control lever  
position degree : 116.0  
tolerance degree : ± 4.0

rack travel mm : 12.40  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : .00  
Rated speed rpm : 1225  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : ± 4.0

control lever  
position degree : 30.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 4.10

##### Testing:

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 475  
Tolerance 1/min : ± 30

Rated speed rpm : 100  
CRT mm min. : > 19.50

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 740  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 1100  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 223.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.40  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.11.94  
Test oil : ISO 4113

Combination No. : 0402746922

Injection pump  
Pump designation : PES6P120A720LS7238  
: -10  
EP type number : 0412726873

Governor  
Governor design. : RQ300/1100PA1013-3  
Governor no. : 0421801609

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM447 hLA  
Power KW : 220.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.70

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.80

Rack travel in mm : 13.80

Tolerance mm :  $\pm$  0.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.30  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 98.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.50  
Rated speed rpm : 1153  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 6.30  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200

CRT mm min. :  $>$  8.40

##### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : 150  
rack travel mm : -2.10  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 350  
rack travel mm : -0.60  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 800  
rack travel mm : 0.20  
Tolerance mm :  $\pm$  0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1400  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 222.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

BREAKAWAY

Rack travel in mm : 13.50  
Rated speed rpm : 1153  
Tolerance 1/min :  $\pm$  8

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.30  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.01.95  
Test oil : ISO 4113  
Combination No. : 0400074778  
Injection pump  
Pump designation : PES4M60C320RS185  
EP type number : 0410064006

Governor  
Governor design. : RSF360/1900M79  
Governor no. : 0420021280

Cust. part No. :

## Customer-spec. information

Customer : MB-PKW  
Motor : OM601 D23 LA  
Power KW : 72.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1469990351

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

C19

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1

°NW after s.o.d. : 17.0  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.90  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 60.0

<hr/>	
Tolerance	
cm3/1000 strokes	: + 0.7
<hr/>	
Check tolerance	
cm3/1000S.	: + 1.8
<hr/>	
Spreed	
<hr/>	
Tolerance	
cm3/1000 strokes	: 3.0
<hr/>	
Check tolerance	
cm3/1000S.	: 3.5
<hr/>	
2nd speed rpm	: 360
<hr/>	
Rack travel in mm	: 6.00
Tolerance mm	: + 0.50
Del. quantity	
cm3/1000 strokes	: 6.5
Tolerance	
cm3/1000 strokes	: + 0.5
Spreed	
Tolerance	
cm3/1000 strokes	: 1.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

IDLE STAGE

Rack travel in mm	: 6.50
Tolerance mm	: + 0.25

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 900
Ref. pressure	
ALDA / ADA hPa	: 1850
Del. quantity	
cm3/1000 strokes	: 60.0
Tolerance	
cm3/1000 strokes	: + 0.7
Check tolerance	
cm3/1000S.	: + 1.8
Spreed	
Tolerance	
cm3/1000 strokes	: 3.0
Check tolerance	
cm3/1000S.	: 3.5

---

RATED SPEED

control lever	
position degree	: 50.0
<hr/>	
rack travel mm	: 8.30
Rated speed rpm	: 2200
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: + 0.60
Rated speed rpm	: 2600

---

SET IDLE CONTROL LEVER POSITION

Rated speed rpm	: 900
<hr/>	
CRT mm max.	: 1.95

---

LOW IDLE

control lever	
position degree	: 9.5
tolerance degree	: + 2.0

Setting point w/out bur r spring	
Rated speed rpm	: 360
rack travel mm	: 6.00

---

SET IDLE AUXILIARY SPRING

Rated speed rpm	: 500
rack travel mm	: 4.20
Tolerance mm	: + 0.10

---

Load pick-up

Rated speed rpm	: 900
<hr/>	
CRT mm max.	: 1.95

rack travel mm	: 6.00
Rated speed rpm	: 360

---

TORQUE CONTROL

Rated speed rpm	: 900
rack travel mm	: 13.90
Tolerance mm	: + 0.05

Rated speed rpm	: 1500
rack travel mm	: 13.30
Tolerance mm	: + 0.30

Rated speed rpm	: 1900
rack travel mm	: 12.70
Tolerance mm	: + 0.35

---

#### ADJUSTMENT TEST ADA/ALDA

##### SETTING

Rated speed rpm : 900  
Ref. pressure  
ALDA / ADA hPa : 1600  
rack travel mm : -0.30  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 900  
Ref. pressure  
ALDA / ADA hPa : 1100  
rack travel mm : -2.65  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -4.30  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1850  
Rated speed rpm : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 58.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
ALDA / ADA hPa : 1850  
Rated speed rpm : 1900  
Spreed  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.2  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.2  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.7  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.8  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

---

#### HIGH IDLE

Rated speed rpm : 2200  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  1.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.2  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.2  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.60  
Tolerance mm :  $\pm$  1.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.5

---

## LOW IDLE

Rated speed rpm : 360  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.3  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

---

## CHECKING THE IDLE-SPEED AUXILIARY

degree : > 42.00  
degree : < 39.50

---

## SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever  
position degree : 9.5  
tolerance degree :  $\pm$  2.0  
Rated speed rpm : 360  
Tolerance mm :  $\pm$  0.70  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.5  
Current A : 1.80

control lever  
position degree : 50.0  
Rated speed rpm : 2600

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.50

Current short-  
duration A : 3.00

## Starting test

Rated speed rpm : 100  
Current A : 1.80

Adjustment of the control-rod travel  
sensor

control lever  
position degree : 50.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.01.95  
Test oil : ISO 4113

Combination No. : 0400074900

Injection pump  
Pump designation : PES4M55C320RS167  
EP type number : 0410054960

Governor  
Governor design. : RSF360/1900M70-4  
Governor no. : 0420021123

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM601-2.3l  
Power KW : 58.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1469990351

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- - 4- 2

Phasing : 0-90-180-270

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 15.5  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 41.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

Spreed	
Tolerance	
cm3/1000 strokes	: 2.5
Check tolerance	
cm3/1000S.	: 3.0
2nd speed rpm	: 335
Rack travel in mm	: 5.20
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes	: 6.5
Tolerance	
cm3/1000 strokes	: + 0.5
Spreed	
Tolerance	
cm3/1000 strokes	: 1.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

IDLE STAGE

Rack travel in mm	: 6.25
Tolerance mm	: + 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Ref. pressure	
ALDA / ADA hPa	: 1100
Del. quantity	
cm3/1000 strokes	: 41.5
Tolerance	
cm3/1000 strokes	: + 0.5
Check tolerance	
cm3/1000S.	: + 1.5
Spreed	
Tolerance	
cm3/1000 strokes	: 2.5
Check tolerance	
cm3/1000S.	: 3.0

RATED SPEED

control lever	
position degree	: 50.0
rack travel mm	: 7.25
Rated speed rpm	: 2100

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 2500

SET IDLE CONTROL LEVER POSITION

Rated speed rpm	: 1000
CRT mm max.	: < 1.45

LOW IDLE

control lever	
position degree	: 13.0
tolerance degree	: + 2.0

Setting point w/out bumper spring

Rated speed rpm	: 335
rack travel mm	: 5.20

SET IDLE AUXILIARY SPRING

Rated speed rpm	: 400
rack travel mm	: 1.00
Tolerance mm	: + 0.10

rack travel mm	: 2.50
Rated speed rpm	: 600
Tolerance 1/min	: + 50

Load pick-up

Rated speed rpm	: 250
CRT mm min.	: > 7.50

Rated speed rpm	: 1000
CRT mm max.	: < 1.45

rack travel mm	: 5.20
Rated speed rpm	: 335

TORQUE CONTROL

Rated speed rpm	: 1000
rack travel mm	: 12.85
Tolerance mm	: + 0.05

Rated speed rpm	: 1400
rack travel mm	: 12.35
Tolerance mm	: + 0.15

Rated speed rpm	: 1900
rack travel mm	: 11.55

Tolerance mm :  $\pm$  0.15

---

#### ADJUST NEGATIVE TORQUE CONTROLL

Rated speed rpm : 500  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 800  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.15

---

#### ADJUSTMENT TEST ADA/ALDA

##### SETTING

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 950  
rack travel mm : -0.10  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 900  
rack travel mm : -0.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -2.00  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 1400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.8  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.8  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 1900

Spreed  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 41.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

---

#### ADJUST NEGATIVE TORQUE CONTROLL

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.3  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.8  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.3  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.8  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

---

#### HIGH IDLE

Rated speed rpm : 2100  
rack travel mm : 7.25  
Tolerance mm :  $\pm$  0.25  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

#### LOW IDLE

Rated speed rpm : 335  
rack travel mm : 5.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.3  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

---

#### SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever  
position degree : 13.0  
tolerance degree : ± 2.0  
Rated speed rpm : 360

Rack travel in mm : 13.00  
Tolerance mm : ± 0.70  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 37.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Current A : 1.80

control lever  
position degree : 50.0  
Rated speed rpm : 2500

Rack travel in mm : 0.50  
Tolerance mm : ± 0.50

Current short-  
duration A : 3.00

#### Starting test

Rated speed rpm : 100  
Current A : 1.80

Adjustment of the control-rod travel  
sensor

control lever  
position degree : 50.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.01.95  
Test oil : ISO 4113

Combination No. : 0400074911

Injection pump  
Pump designation : PES4M55C320RS163  
EP type number : 0410054961

Governor  
Governor design. : RSF360/2300M60-6  
Governor no. : 0420021091

Cust. part No. :

Customer-spec. information  
Customer : MB-PKW  
Motor : OM601 (2.0)  
Power KW : 52.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1469990351

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- - 4- 2

Phasing : 0-90-180-270

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1

°NW after s.o.d. : 17.5  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

Spreed

Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance

cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 335

Rack travel in mm : 5.10

Tolerance mm : + 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 6.5

Tolerance

cm<sup>3</sup>/1000 strokes : + 0.5

Spreed

Tolerance

cm<sup>3</sup>/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50

Tolerance mm : + 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity

cm<sup>3</sup>/1000 strokes : 32.0

Tolerance

cm<sup>3</sup>/1000 strokes : + 0.5

Check tolerance

cm<sup>3</sup>/1000S. : + 1.5

Spreed

Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance

cm<sup>3</sup>/1000S. : 3.0

RATED SPEED

control lever

position degree : 50.0

rack travel mm : 7.00

Rated speed rpm : 2500

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : < 1.95

LOW IDLE

control lever

position degree : 12.0

tolerance degree : + 2.0

Setting point w/out bumper spring

Rated speed rpm : 335

rack travel mm : 5.10

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400

rack travel mm : 7.90

Tolerance mm : + 0.10

Load pick-up

Rated speed rpm : 250

CRT mm min. : > 8.50

Rated speed rpm : 1000

CRT mm max. : < 1.95

rack travel mm : 5.10

Rated speed rpm : 335

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 11.15

Tolerance mm : + 0.05

Rated speed rpm : 1800

rack travel mm : 10.60

Tolerance mm : + 0.10

Rated speed rpm : 2200

rack travel mm : 10.10

Tolerance mm : + 0.10

---

## ADJUSTMENT TEST ADA/ALDA

### SETTING

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 950  
rack travel mm : -0.10  
Tolerance mm :  $\pm$  0.10

### MEASUREMENT

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 900  
rack travel mm : -0.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -2.00  
Tolerance mm :  $\pm$  0.20

---

### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 1800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 34.8  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.8  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 2200  
Spreed  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

D01

---

### HIGH IDLE

Rated speed rpm : 2500  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

---

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 7.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 55.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

### LOW IDLE

Rated speed rpm : 335  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.3  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

---

### CHECKING THE IDLE-SPEED AUXILIARY

degree : > 49.00  
degree : < 46.50

---

SETTING/TESTING ELECTRONIC IDLE  
REGULATION (ELR)

control lever  
position degree : 12.0  
tolerance degree :  $\pm$  2.0  
Rated speed rpm : 360

Rack travel in mm : 12.70  
Tolerance mm :  $\pm$  0.70  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 34.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

Current A : 1.80

control lever  
position degree : 50.0  
Rated speed rpm : 2950

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.50

Current short-  
duration A : 3.00

Starting test

Rated speed rpm : 100

Current A : 1.80

Adjustment of the control-rod travel  
sensor

control lever  
position degree : 50.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.01.95  
Test oil : ISO 4113

Combination No. : 0400074926

Injection pump  
Pump designation : PES4M55C320RS161  
EP type number : 0410054964

Governor  
Governor design. : RSF375/2300M56-3  
Governor no. : 0420021056

Cust. part No. :

Customer-spec. information  
Customer : MB-PKW  
Motor : OM601-LVP  
Power KW : 53.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1469990351

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

D03

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 2

Phasing : 0-90-180-270

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 18.5  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

---

### Spreed

---

#### Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

---

#### Check tolerance

cm<sup>3</sup>/1000S. : 3.0

---

2nd speed rpm : 375

Rack travel in mm : 5.30

Tolerance mm : ± 0.10

#### Del. quantity

cm<sup>3</sup>/1000 strokes : 6.5

#### Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

#### Spreed

#### Tolerance

cm<sup>3</sup>/1000 strokes : 1.0

### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### IDLE STAGE

Rack travel in mm : 6.50

Tolerance mm : ± 0.10

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

#### Ref. pressure

ALDA / ADA hPa : -

#### Del. quantity

cm<sup>3</sup>/1000 strokes : 32.5

#### Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

#### Check tolerance

cm<sup>3</sup>/1000S. : ± 1.5

#### Spreed

#### Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

#### Check tolerance

cm<sup>3</sup>/1000S. : 3.0

---

#### RATED SPEED

control lever  
position degree : 50.0

rack travel mm : 7.30

Rated speed rpm : 2500

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 2950

---

#### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.95

---

#### LOW IDLE

#### control lever

position degree : 15.0

tolerance degree : ± 2.0

#### Setting point w/out bumper spring

Rated speed rpm : 375

rack travel mm : 5.30

---

#### SET IDLE AUXILIARY SPRING

Rated speed rpm : 400

rack travel mm : 5.30

Tolerance mm : ± 0.10

#### Load pick-up

Rated speed rpm : 250

CRT mm min. : > 10.00

Rated speed rpm : 1000

CRT mm max. : 1.95

rack travel mm : 5.30

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 11.35

Tolerance mm : ± 0.05

Rated speed rpm : 1800

rack travel mm : 11.00

Tolerance mm : ± 0.10

Rated speed rpm : 2250

rack travel mm : 10.40

Tolerance mm : ± 0.10

---

## ADJUSTMENT TEST ADA/ALDA

### SETTING

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 930  
rack travel mm : - 0.3  
Tolerance mm : +- 0,2

### MEASUREMENT

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 840  
rack travel mm : -1.20  
Tolerance mm : +- 0.10

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 700  
rack travel mm : -2.50  
Tolerance mm : +- 0.20

---

### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 1800  
Del. quantity  
cm3/1000 strokes : 35.3  
Tolerance  
cm3/1000 strokes : +- 0.8  
Check tolerance  
cm3/1000S. : +- 1.8  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 2250  
Spreed  
Del. quantity  
cm3/1000 strokes : 33.5  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 2.0  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

D05

---

### HIGH IDLE

Rated speed rpm : 2500  
rack travel mm : 7.30  
Tolerance mm : +- 0.20  
Del. quantity  
cm3/1000 strokes : 19.0  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

---

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 7.10  
Del. quantity  
cm3/1000 strokes : 52.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 6.0

---

### LOW IDLE

Rated speed rpm : 375  
rack travel mm : 5.30  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : +- 2.3  
Spreed  
Check tolerance  
cm3/1000S. : 1.5

---

### CHECKING THE IDLE-SPEED AUXILIARY

degree : > 49.00  
degree : < 46.50

---

SETTING PNEUMATIC FAST IDLE (ELA)  
(PLA) POSITION

control lever  
position degree : VWL  
Rated speed rpm : 425

Rack travel in mm : 7.60  
Tolerance mm :  $\pm$  0.80  
Vacuum hPa : 400.0  
Vacuum hPa : -

---

SETTING/TESTING ELECTRONIC IDLE  
REGULATION (ELR)

control lever  
position degree : 15.0  
tolerance degree :  $\pm$  2.0

control lever  
position degree : 50.0

Adjustment of the control-rod travel  
sensor

control lever  
position degree : 50.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.05.94  
Test oil : ISO 4113

Combination No. : 0401876800

Injection pump  
Pump designation : PE6P120A320RS3313  
EP type number : 0411826807

Governor  
Governor design. : RSV350...1050P8A558  
Governor no. : 0421833423

Cust. part No. : 1351267

Customer-spec. information  
Customer : SCANIA  
Motor : D9

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1688901104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

Start-of-delivery setting with RO80 diaphragm.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.35  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 160.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spreed  
Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

2nd speed rpm : 350

Rack travel in mm : 4.90  
Tolerance mm : + 0.30

Del. quantity  
cm3/1000 strokes : 18.0

Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0

Spreed  
Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 6.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 160.0

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Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

##### RATED SPEED

control lever  
position degree : 56.0  
tolerance degree : + 4.0

control lever  
position degree : 106.0  
tolerance degree : + 4.0

rack travel mm : 10.10  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

rack travel mm : 1.00  
Rated speed rpm : 1170  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

control lever  
position degree : 24.0  
tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 4.70

##### Testing:

Rated speed rpm : 350  
rack travel mm : 4.20  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 535  
Tolerance 1/min : + 30

---

#### TORQUE CONTROL

Rated speed rpm : 925  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 700  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.85  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 210  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 280  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 106.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.10  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 7.30  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Note remarks

Edition : 12.12.94  
Test oil : ISO 4113

Injection pump  
Pump designation : PES6P110A120RS3286  
EP type number : 0412016737

Governor  
Governor design. : RQV350...1150PA1014  
: -2K  
Governor no. : 0421815296

```
Customer-spec. information
Customer      : CUMMINS
Motor         : 6CTA-A
Power KW      : 168.0
```

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Test nozzle holde  
assembly : 1688901101

Outside diameter : 6.0

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

Test pressure bar : 23.0  
Tolerance bar :  $\pm$  1.0

Prestroke mm	:	3.25
Tolerance mm	:	+ 0.05

test only : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm :  $\pm 1.50$

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

```
Tolerance      : +- 0.30
Check
tolerance °NW  : +- 0.50
```

Time to cyl. no. : 1  
S.o.d. blocking  
Barrel no. : 1

```

*NW after s.o.d. :      5.5
Tolerance         : + 0.10
Check
tolerance *NW     : + 0.23

```

Rated speed rpm : 1100

Rack travel in mm : 15.45  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

RATED SPEED

control lever  
position degree : 112.0  
tolerance degree : + 4.0

control lever  
position degree : 59.0

tolerance degree : + 4.0

rack travel mm : 14.20  
Rated speed rpm : 1220  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1395  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1500

---

LOW IDLE

control lever  
position degree : 16.0  
tolerance degree : + 4.0

control lever  
position degree : 69.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 275

CRT mm min. : > 7.30

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 350

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 15.45  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 14.30  
Tolerance mm : + 0.20

Rated speed rpm : 1150  
rack travel mm : 15.30  
Tolerance mm : + 0.10

Rated speed rpm : 650  
rack travel mm : 14.10  
Tolerance mm : + 0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 15.45  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Rated speed rpm : 1100  
  
Pressure hPa : 600  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.20  
  
Pressure hPa : 290  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

---

START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  290  
Check  
speed 1/min :  $<$  300

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 14.20  
Rated speed rpm : 1220  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402036750  
Injection pump  
Pump designation : PES6P110A120RS3286  
EP type number : 0412016737  
Governor  
Governor design. : RQV350...1150PA1014  
: -3K  
Governor no. : 0421815298  
Cust. part No. : 3921972

Customer-spec. information  
Customer : CDC  
Motor : 6CTA-A  
Power KW : 156.5

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 5.5  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.65  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### RATED SPEED

control lever  
position degree : 109.0  
tolerance degree : + 4.0

control lever  
position degree : 56.0

tolerance degree : + 4.0

rack travel mm : 13.40  
Rated speed rpm : 1225  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1380  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1500

#### LOW IDLE

control lever  
position degree : 14.0  
tolerance degree : + 4.0

control lever  
position degree : 67.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 275

CRT mm min. : > 7.30

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 435

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.65  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 13.60  
Tolerance mm : + 0.10

Rated speed rpm : 1150  
rack travel mm : 14.50  
Tolerance mm : + 0.10

Rated speed rpm : 650  
rack travel mm : 13.40  
Tolerance mm : + 0.20



---

# ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 14.65  
Tolerance mm :  $\pm$  0.05

## MEASUREMENT

Rated speed rpm : 1100  
  
Pressure hPa : 600  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.20  
  
Pressure hPa : 290  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

---

## START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 290  
Check  
speed 1/min : < 300

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

## BREAKAWAY

Rack travel in mm : 13.40  
Rated speed rpm : 1225  
Tolerance 1/min :  $\pm$  5

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113

Combination No. : 0402036751

Injection pump  
Pump designation : PES6P110A120RS3286  
EP type number : 0412016737

Governor  
Governor design. : RQV350...1200PA1014  
: -4K  
Governor no. : 0421815299

Cust. part No. : 3921973

## Customer-spec. information

Customer : CDC  
Motor : 6CTA-A  
Power KW : 156.5

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 2.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### RATED SPEED

control lever  
position degree : 58.0  
tolerance degree : ± 4.0

rack travel mm : 13.30  
Rated speed rpm : 1275  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1415

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1500

#### LOW IDLE

control lever  
position degree : 14.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.90  
Tolerance mm : ± 0.10

Rated speed rpm : 275

CRT mm min. : > 7.30

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 435

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.55  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 13.50  
Tolerance mm : ± 0.10

Rated speed rpm : 1150  
rack travel mm : 14.40  
Tolerance mm : ± 0.10

Rated speed rpm : 650  
rack travel mm : 13.30  
Tolerance mm : ± 0.20

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 14.55  
Tolerance mm : ± 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 9.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100

Pressure hPa : 475  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 215  
rack travel mm : 10.45  
Tolerance mm :  $\pm$  0.05

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  290  
Check  
speed 1/min :  $<$  300

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 139.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 13.30

D18

Rated speed rpm : 1275  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.01.95  
Test oil : ISO 4113

Combination No. : 0402046840

Injection pump  
Pump designation : PES6P120A320RS3307  
EP type number : 0412026757

Governor  
Governor design. : RQV250...950PA794-3  
Governor no. : 0421814015

Cust. part No. : 0X7232

## Customer-spec. information

Customer : PERKINS  
Motor : EAGLE TX 300/335

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 125  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1688901019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750075

D19

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05

test only : ± 1.10

Rack travel in mm : 12.50  
Tolerance mm : ± 0.50

Firing order : 1- 4- 2- 6- 3-  
: 5

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 224.0

---

Tolerance  
cm3/1000 strokes : + 1.0

---

Check tolerance  
cm3/1000S. : + 4.0

---

Spread  
Tolerance  
cm3/1000 strokes : 6.0

---

Check tolerance  
cm3/1000S. : 9.0

---

2nd speed rpm : 250

Rack travel in mm : 4.10  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 15.0

Tolerance  
cm3/1000 strokes : + 2.0

Check tolerance  
cm3/1000S. : + 5.0

Spread  
Tolerance  
cm3/1000 strokes : 3.0

Check tolerance  
cm3/1000S. : 6.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.12  
Tolerance mm : + 0.10

Rated speed rpm : 998  
guide sleeve  
travel mm : 7.50  
Tolerance mm : + 0.10

Rated speed rpm : 303  
guide sleeve  
travel mm : 1.79  
Tolerance mm : + 0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 2.24  
Tolerance mm : + 0.25

Rated speed rpm : 660  
guide sleeve  
travel mm : 3.96

Tolerance mm : + 0.25

Rated speed rpm : 1260  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1110

Rack travel in mm : 11.30  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : -

Del. quantity  
cm3/1000 strokes : 224.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spread  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 117.0  
tolerance degree : + 4.0

rack travel mm : 11.30  
Rated speed rpm : 985  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1070  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1200

---

LOW IDLE

control lever  
position degree : 82.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 250  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 150  
CRT mm min. :  $>$  7.50

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 400  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1200  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600

Pressure hPa : 220  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 340  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100

Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  170  
Check  
speed 1/min :  $<$  190

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 106.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.30  
Rated speed rpm : 985  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
rack travel mm : 4.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0





# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.01.95  
Test oil : ISO 4113  
  
Combination No. : 0402046865B  
  
Injection pump  
Pump designation : PES6P120A320LS3321  
: -1  
EP type number : 0412026776  
  
Governor  
Governor design. : RQ275...1100PA1085  
: -1  
Governor no. : 0421801761  
  
Cust. part No. :

Customer-spec. information  
Customer : RABA  
Motor : SIEHE BEMERKUNG

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

D23

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05

test only : ± 1.10

Rack travel in mm : 12.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 14.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0

---

Tolerance  
cm3/1000 strokes : + 1.0

---

Check tolerance  
cm3/1000S. : + 4.0

---

Speed  
Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

2nd speed rpm : 275

Rack travel in mm : 9.50  
Tolerance mm : + 0.30

Del. quantity  
cm3/1000 strokes : 22.0

Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0

Speed  
Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 0.76  
Tolerance mm : + 0.10

Rated speed rpm : 1116  
guide sleeve  
travel mm : 7.85  
Tolerance mm : + 0.10

Rated speed rpm : 1100  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 387  
guide sleeve  
travel mm : 3.58  
Tolerance mm : + 0.10

Rated speed rpm : 500  
guide sleeve  
travel mm : 6.00

Tolerance mm : + 0.10

Rated speed rpm : 1240  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 500

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure

hPa : -

Del. quantity  
cm3/1000 strokes : 198.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Speed  
Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 47.0  
tolerance degree : + 4.0

control lever  
position degree : 109.0  
tolerance degree : + 4.0

rack travel mm : 13.00  
Rated speed rpm : 1150  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1220  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 10.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 6.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 375  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 175  
CRT mm min. :  $>$  8.50

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 120  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 340  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 115.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

#### LOW IDLE

Rated speed rpm : 275  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 02.11.94  
Test oil : ISO 4113

Combination No. : 0402646792

Injection pump  
Pump designation : PE6P120A320LS7854  
EP type number : 0412626872

Governor  
Governor design. : RQV350...1050PA1051  
Governor no. : 0421814036

Cust. part No. : 0230746202

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM441 LA  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 115  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1-

Phasing : 0-60-120-180-240  
: -300-360  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.35  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 350

Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.22  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1108  
guide sleeve  
travel mm : 9.64  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 403  
guide sleeve  
travel mm : 1.97  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 453

guide sleeve  
travel mm : 2.52  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 770  
guide sleeve  
travel mm : 4.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1320  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1160

Rack travel in mm : 14.00  
Tolerance mm :  $\pm$  1.30

---

FULL LOAD DELIVERY AT F L LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 105.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 12.10  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1170  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 410  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 250

CRT mm min. :  $>$  8.50

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : -

#### MEASUREMENT

Pressure hPa : 275  
Rated speed rpm : 500  
rack travel mm : 0.85

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 580  
rack travel mm : 2.50  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm :  $>$  100

Check  
speed 1/min :  $>$  80

Rated speed rpm :  $<$  270

Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

## BREAKAWAY

Rack travel in mm : 12.10  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

## LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402736803  
Injection pump  
Pump designation : PES6P110A12ORS7187  
EP type number : 0412716801  
Governor  
Governor design. : RQV350...1100PA924  
: -3K  
Governor no. : 0421815228  
Cust. part No. :

Customer-spec. information  
Customer : CDC  
Motor : 6CTA

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413047

Overflow quantity  
min. l/h : 165  
Tolerance l/h : ± 5.0

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 18.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 7.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1230

Rack travel in mm : 9.00  
Tolerance mm : + 3.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### RATED SPEED

control lever  
position degree : 60.0  
tolerance degree : + 4.0

rack travel mm : 9.40  
Rated speed rpm : 1145  
Tolerance 1/min : + 5

rack travel mm : 4.00

E04

Rated speed rpm : 1215  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

#### LOW IDLE

control lever  
position degree : 15.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 4.70  
Tolerance mm : + 0.10

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 400

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 10.45  
Tolerance mm : + 0.05

Rated speed rpm : 900  
rack travel mm : 10.20  
Tolerance mm : + 0.10

Rated speed rpm : 650  
rack travel mm : 4.95  
Tolerance mm : + 4.95

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1100  
Pressure hPa : 900  
rack travel mm : 10.45  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 6.90  
Tolerance mm : + 0.20

Rated speed rpm : 1100  
Pressure hPa : 330  
rack travel mm : 8.60  
Tolerance mm :  $\pm$  0.20  
  
Pressure hPa : 200  
rack travel mm : 7.45  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 9.40  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402736805  
Injection pump  
Pump designation : PES6P120A120RS7206  
EP type number : 0412726835  
Governor  
Governor design. : RQV350...1100PA924  
: -5K  
Governor no. : 0421815250  
Cust. part No. : 3281182

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 202.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Overflow quantity  
min. l/h : 165  
Tolerance l/h : ± 5.0

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 18.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 7.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 7.5  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1420

Rack travel in mm : 9.00  
Tolerance mm : ± 3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 115.0  
tolerance degree : ± 4.0

rack travel mm : 11.10  
Rated speed rpm : 1145

E07

Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1275  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.30  
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 1.80

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 450

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.15  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 11.20  
Tolerance mm : ± 0.10

Rated speed rpm : 800  
rack travel mm : 11.80  
Tolerance mm : ± 0.10

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 12.15  
Tolerance mm : ± 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 8.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100

Pressure hPa : 300  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 600  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.10

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  270  
Check  
speed 1/min :  $<$  290

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 11.10

E08

Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113

Combination No. : 0402736811

Injection pump  
Pump designation : PES6P110A120RS7213  
EP type number : 0412716804

Governor  
Governor design. : RQV400...1250PA964  
: -3K  
Governor no. : 0421815255

Cust. part No. : 3921776

Customer spec. information  
Customer : CDC  
Motor : 6BTA-A  
Power KW : 147.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Overflow quantity  
min. L/h : 120  
Tolerance L/h : ± 5.0

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 6.0  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 14.85  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### RATED SPEED

control lever  
position degree : 60.0  
tolerance degree : + 4.0

rack travel mm : 13.80  
Rated speed rpm : 1295

E10

Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1475  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1600

#### LOW IDLE

control lever  
position degree : 16.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 400  
rack travel mm : 5.60  
Tolerance mm : + 0.10

Rated speed rpm : 275

CRT mm min. : > 7.20

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 423

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 14.85  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 13.30  
Tolerance mm : + 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1200  
rack travel mm : 14.85  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250



rack travel mm : 8.40  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250

Pressure hPa : 755  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 410  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  290  
Check  
speed 1/min :  $<$  300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.80  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113

Combination No. : 0402736812

Injection pump  
Pump designation : PES6P110A12ORS7214  
EP type number : 0412716805

Governor  
Governor design. : RQV350...1200PA964  
: -4K  
Governor no. : 0421815256

Cust. part No. : 3921774

## Customer-spec. information

Customer : CDC  
Motor : 6CTA-A  
Power KW : 156.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 120  
Tolerance l/h : ± 5.0

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.40  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 5.5  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

---

## BASIC SETTING

Rated speed rpm : 1200

---

Rack travel in mm : 12.35  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1260

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

---

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

## RATED SPEED

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 11.30  
Rated speed rpm : 1250  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1380  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1500

---

## LOW IDLE

control lever  
position degree : 5.0  
tolerance degree :  $\pm$  4.0

### Testing:

Rated speed rpm : 350  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 275  
CRT mm min. :  $>$  7.20

---

## CONTINUOUS-ACTION CONTROL

Rated speed rpm : 423

---

## TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 550  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1200  
Pressure hPa : 1200  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1200  
rack travel mm : 7.90  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1200  
  
Pressure hPa : 575  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20  
  
Pressure hPa : 225  
rack travel mm : 8.95  
Tolerance mm :  $\pm$  0.05

---

START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  290  
Check  
speed 1/min :  $<$  300

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 11.30  
Rated speed rpm : 1250  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113

Combination No. : 0402736823

Injection pump  
Pump designation : PES6P110A120RS7249  
EP type number : 0412716807

Governor  
Governor design. : RQV350...1150PA964  
: -9K  
Governor no. : 0421815295

Cust. part No. : 3921970

Customer-spec. information  
Customer : CDC  
Motor : 6CTA-A  
Power KW : 187.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 120  
Tolerance l/h : ± 5.0

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.35  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 179.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 179.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 65.0  
tolerance degree : + 4.0

rack travel mm : 13.30  
Rated speed rpm : 1205

Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1385  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1500

##### LOW IDLE

control lever  
position degree : 15.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.50  
Tolerance mm : + 0.10

Rated speed rpm : 275

CRT mm min. : > 7.10

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 425

##### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.35  
Tolerance mm : + 0.05

Rated speed rpm : 650  
rack travel mm : 11.80  
Tolerance mm : + 0.20

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1200  
rack travel mm : 14.35  
Tolerance mm : + 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150

rack travel mm : 8.10  
Tolerance mm : + 0.20

Rated speed rpm : 1150

Pressure hPa : 860  
rack travel mm : 13.40  
Tolerance mm : + 0.20

Pressure hPa : 320  
rack travel mm : 9.65  
Tolerance mm : + 0.05

---

#### START CUT-OUT

Rated speed rpm : > 100

Check  
speed 1/min : > 80

Rated speed rpm : < 290

Check  
speed 1/min : < 300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : 13.30  
Rated speed rpm : 1205  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.40  
Tolerance mm : + 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113

Combination No. : 0402736829

Injection pump  
Pump designation : PES6P120A120RS7261  
EP type number : 0412726876

Governor  
Governor design. : RQV350...1100PA924  
: -7K  
Governor no. : 0421815317

Cust. part No. : 3281842

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 202.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 18.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 2.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 7.0  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.05  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1400

Rack travel in mm : 9.00  
Tolerance mm : ± 3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 57.0  
tolerance degree : ± 4.0

control lever  
position degree : 115.0

tolerance degree : ± 4.0

rack travel mm : 11.00  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1275  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : ± 4.0

control lever  
position degree : 17.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 4.90  
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 6.30

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 400

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.05  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 11.30  
Tolerance mm : ± 0.10

Rated speed rpm : 900  
rack travel mm : 11.55  
Tolerance mm : ± 0.15

Rated speed rpm : 500  
rack travel mm : 10.55  
Tolerance mm : ± 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 7.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100

Pressure hPa : 320  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 700  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 270  
Check  
speed 1/min : < 290

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -

E20

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402736830  
Injection pump  
Pump designation : PES6P110A120RS7263  
EP type number : 0412716808

Governor  
Governor design. : RQV350...1250PA964  
                  : -11K  
Governor no. : 0421815321

Cust. part No. : 3281780

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTAA  
Power KW : 154.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 6.5  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.85

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.94  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1316  
guide sleeve  
travel mm : 8.13  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 826  
guide sleeve  
travel mm : 4.51  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 1.77  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 2.42  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 460  
guide sleeve  
travel mm : 2.82  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1620  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1440

Rack travel in mm : 9.00  
Tolerance mm :  $\pm$  3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 63.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.50  
Rated speed rpm : 1310  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1450  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1600

##### LOW IDLE

control lever  
position degree : 72.0

tolerance degree : + 4.0

control lever  
position degree : 17.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.00  
Tolerance mm : + 0.10

Rated speed rpm : 250

CRT mm min. : > 6.50

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.85  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 12.40  
Tolerance mm : + 0.10

Rated speed rpm : 1250  
rack travel mm : 14.50  
Tolerance mm : + 0.10

Rated speed rpm : 400  
rack travel mm : 11.65  
Tolerance mm : + 0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1200  
rack travel mm : 14.50  
Tolerance mm : + 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
Tolerance mm : + 0.20

Rated speed rpm : 1250

Pressure hPa : 570  
rack travel mm : 11.30  
Tolerance mm : + 0.20

Pressure hPa : 775  
rack travel mm : 13.15  
Tolerance mm : + 0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 270  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : 13.50  
Rated speed rpm : 1310  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.50

Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  24.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402736831  
Injection pump  
Pump designation : PES6P120A120RS7261  
EP type number : 0412726876  
Governor  
Governor design. : RQV350...1100PA924  
: -8K  
Governor no. : 0421815318  
Cust. part No. : 3281841

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 176.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 18.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 2.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 7.0  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1400

Rack travel in mm : 9.00  
Tolerance mm : ± 3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 113.0  
tolerance degree : ± 4.0

rack travel mm : 9.60  
Rated speed rpm : 1145

Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1255  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.10  
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 1.60

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 400

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 10.85  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 10.00  
Tolerance mm : ± 0.10

Rated speed rpm : 900  
rack travel mm : 10.35  
Tolerance mm : ± 0.15

Rated speed rpm : 400  
rack travel mm : 9.15  
Tolerance mm : ± 0.15

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100



Pressure hPa : 900  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 7.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100

Pressure hPa : 320  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 560  
rack travel mm : 10.25  
Tolerance mm :  $\pm$  0.05

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  270  
Check  
speed 1/min :  $<$  290

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 9.80  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402736856  
Injection pump  
Pump designation : PES6P110A120RS7213  
EP type number : 0412716804

Governor  
Governor design. : RQV350...1250PA964  
: -11K  
Governor no. : 0421815426

Cust. part No. : 3282240

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTAA  
Power KW : 172.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 7.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 6.0  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 15.10  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 158.5

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.94  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1346  
guide sleeve  
travel mm : 8.44  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 840  
guide sleeve  
travel mm : 4.58  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 1.77  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 2.53  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 2.76  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1620  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

F01

control lever  
position degree : - 1  
Rated speed rpm : 1440

Rack travel in mm : 9.00  
Tolerance mm :  $\pm$  3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm3/1000 strokes : 158.5  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.50  
Rated speed rpm : 1325  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1480  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1600

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250  
CRT mm min. : > 7.20

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 15.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1250  
rack travel mm : 16.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1800  
rack travel mm : 16.10  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 9.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250

Pressure hPa : 450  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 1150  
rack travel mm : 14.35  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

F02

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 270  
Check  
speed 1/min : < 300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.50  
Rated speed rpm : 1325  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113

Combination No. : 0402736858

Injection pump  
Pump designation : PES6P110A120RS7214  
EP type number : 0412716805

Governor  
Governor design. : RQV350...1200PA964  
                  : -28K  
Governor no. : 0421815428

Cust. part No. : 3282464

---

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTA-A  
Power KW : 156.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 120  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.40  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

---

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 5.5  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

---

## BASIC SETTING

Rated speed rpm : 1200

---

Rack travel in mm : 12.35  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.80  
Tolerance mm : + 0.20

Rated speed rpm : 1200  
guide sleeve  
travel mm : 9.10  
Tolerance mm : + 0.10

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.30  
Tolerance mm : + 0.20

Rated speed rpm : 700  
guide sleeve  
travel mm : 6.10  
Tolerance mm : + 0.20

Rated speed rpm : 1400  
guide sleeve  
travel mm : 10.90  
Tolerance mm : + 0.20

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1330

F05

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### RATED SPEED

control lever  
position degree : 119.0  
tolerance degree : + 4.0

rack travel mm : 11.30  
Rated speed rpm : 1250  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1380  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1500

---

##### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.50  
Tolerance mm : + 0.10

Rated speed rpm : 275

CRT mm min. : > 7.20

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 423

---

#### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 550  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1200  
Pressure hPa : 1200  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1200  
rack travel mm : 7.90  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1200

Pressure hPa : 575  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 225  
rack travel mm : 8.95  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 290  
Check  
speed 1/min : < 300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 91.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

##### BREAKAWAY

Rack travel in mm : 11.30  
Rated speed rpm : 1250  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

## Note remarks

Edition : 12.12.94  
Test oil : ISO 4113

Injection pump  
Pump designation : PES6P110A120RS7214  
EP type number : 0402716805

Governor  
Governor design. : RQV350...1200PA964  
: -29K  
Governor no. : 0421815430

Customer-spec. information

Customer : CDC  
Motor : 6CTA-A  
Power KW : 187.0

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Test Lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar :  $\pm$  1.0

Prestroke mm : 1.40  
Tolerance mm :  $\pm 0.05$

test only : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm :  $\pm 1.50$

Firing order : 1- 5- 3- 6- 2-  
: 4

```
Phasing      : 0-60-120-180-240
              : -300
Tolerance    : + 0.30
Check
tolerance °NW : + 0.50
```

BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1

```

°NW after s.o.d. :      5.5
Tolerance         : + 0.10
Check
tolerance °NW     : + 0.23

```

## BASIC SETTING

Rated speed rpm : 1200



---

Rack travel in mm : 14.55  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1330

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### RATED SPEED

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.50  
Rated speed rpm : 1250  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1410  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1500

---

##### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 15.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 275

CRT mm min. : > 7.20

---

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 425

---

##### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1200  
Pressure hPa : 1200  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1200  
rack travel mm : 7.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1200

Pressure hPa : 860  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 320  
rack travel mm : 9.45  
Tolerance mm :  $\pm$  0.05

---

START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  290  
Check  
speed 1/min :  $<$  300

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -

F09

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 91.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 13.50  
Rated speed rpm : 1250  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113

Combination No. : 0402736861

Injection pump  
Pump designation : PES6P120A120RS7261  
EP type number : 0412726876

Governor  
Governor design. : RQV350...1100PA924  
: -11K  
Governor no. : 0421815431

Cust. part No. : 3282468

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 202.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 18.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 12.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 7.0  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1400

Rack travel in mm : 9.00  
Tolerance mm : ± 3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 57.0  
tolerance degree : ± 4.0

control lever  
position degree : 115.0

F11

tolerance degree : ± 4.0

rack travel mm : 11.00  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1275  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : ± 4.0

control lever  
position degree : 17.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 4.90  
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 6.30

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 400

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.05  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 11.30  
Tolerance mm : ± 0.10

Rated speed rpm : 900  
rack travel mm : 11.55  
Tolerance mm : ± 0.15

Rated speed rpm : 500  
rack travel mm : 10.55  
Tolerance mm : ± 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 7.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100

Pressure hPa : 320  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 700  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 270  
Check  
speed 1/min : < 290

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

Note remarks

Edition : 12.12.94  
Test oil : ISO 4113

Injection pump  
Pump designation : PES6P120A120RS7206  
EP type number : 0412726835

Governor  
Governor design. : RQV350...1100PA924  
: -12K  
Governor no. : 0412815433

```
Customer-spec. information
Customer      : CUMMINS
Motor         : 6CTAA
Power KW      : 202.0
```

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow quantity  
min. L/h : 165  
Tolerance L/h :  $\pm$  5.0

Opening pressure  
bar : 208.5  
Tolerance bar :  $\pm$  1.5

Outside diameter : 6.0

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

Test pressure bar : 18.0  
Tolerance bar :  $\pm$  1.0

Prestroke mm	:	3.55
Tolerance mm	:	+ 0.05

Rack travel in mm : 2.50  
Tolerance mm :  $\pm 1.50$

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.50

S.o.d. blocking  
Barrel no. : 1

```

°NW after s.o.d. : 7.5
Tolerance : +- 0.10
Check
tolerance °NW : +- 0.23

```

Rack travel in mm : 12.15  
Tolerance mm :  $\pm 0.05$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1420

Rack travel in mm : 9.00  
Tolerance mm : ± 3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 57.0  
tolerance degree : ± 4.0

control lever  
position degree : 115.0

tolerance degree : ± 4.0

rack travel mm : 11.10  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1275  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 4.0

control lever  
position degree : 17.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.30  
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 6.80

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 450

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.15  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 11.20  
Tolerance mm : ± 0.10

Rated speed rpm : 800  
rack travel mm : 11.80  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 8.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100  
  
Pressure hPa : 300  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.20  
  
Pressure hPa : 600  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.10

---

START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  270  
Check  
speed 1/min :  $<$  290

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 11.10  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.01.95  
Test oil : ISO 4113

Combination No. : 0402746649

Injection pump  
Pump designation : PES6P120A320RS7359  
EP type number : 041272695

Governor  
Governor design. : RQ275/1050PA1217  
Governor no. : 0421801782

Cust. part No. : CCEP 5150 66  
: -225/228

## Customer-spec. information

Customer : RVI  
Motor : MIDR062045 I-B41  
Power KW : 185.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 2417413078

Inlet press. bar : 2.5  
Tolerance bar : + 0.1

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Lube oil : 1409918004

Test lines : 1680750008

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Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 4.55  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.25  
Tolerance mm : + 0.75

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : + 0.30  
Check  
tolerance °NW : + 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.55  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 275

Rack travel in mm : -6.70  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 276.0  
tolerance degree : ± 4.0

rack travel mm : -1.00  
Rated speed rpm : 1130  
Tolerance 1/min : ± 5

rack travel mm : -8.55  
Rated speed rpm : 1235  
Tolerance 1/min : ± 15

rack travel mm : -12.10  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 252.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 200

CRT mm max. : < -5.50

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 360

##### TORQUE CONTROL

Rated speed rpm : 700

Rated speed rpm : 1050  
Tolerance mm : ± 0.10

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

## MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -1.75  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 160  
rack travel mm : -1.30  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 240  
rack travel mm : -0.60  
Tolerance mm :  $\pm$  0.05

## START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  195  
Check  
speed 1/min :  $<$  215

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

## BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1130  
Tolerance 1/min :  $\pm$  5

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

## LOW IDLE

Rated speed rpm : 275  
rack travel mm : -6.70  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402936001  
Injection pump  
Pump designation : PES6P120A320/3RS8012  
EP type number : 0412926017  
Governor  
Governor design. : RQV350...1100PA964  
: -1K  
Governor no. : 0421815253  
Cust. part No. :

Customer-spec. information  
Customer : CDC  
Motor : 6CTA US 94  
Power KW : 224.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2417413064  
Inlet press. bar : 2.5  
Test nozzle holder  
assembly : 1688901103  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1680750008  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 18.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.40  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 1.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 12.05  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
 cm3/1000S. : 9.0  
 2nd speed rpm : 350  
 Rack travel in mm : 9.50  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm3/1000 strokes : 27.0  
 Tolerance  
 cm3/1000 strokes : + 3.0  
 Spread  
 Tolerance  
 cm3/1000 strokes : 8.0  
 Check tolerance  
 cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1310  
 Rack travel in mm : 9.00  
 Tolerance mm : + 3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
 Aneroid pressure  
 hPa : 1200  
 Del. quantity  
 cm3/1000 strokes : 113.0  
 Tolerance  
 cm3/1000 strokes : + 1.0  
 Spread  
 Tolerance  
 cm3/1000 strokes : 5.0  
 Check tolerance  
 cm3/1000S. : 9.0

##### RATED SPEED

control lever  
 position degree : 69.0  
 tolerance degree : + 4.0  
 control lever  
 position degree : 118.0  
 tolerance degree : + 4.0

rack travel mm : 11.00  
 Rated speed rpm : 1145  
 Tolerance 1/min : + 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1265  
 Tolerance 1/min : + 15  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1380

##### LOW IDLE

control lever  
 position degree : 66.0  
 tolerance degree : + 4.0

control lever  
 position degree : 11.0  
 tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 350  
 rack travel mm : 5.10  
 Tolerance mm : + 0.10

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 415

##### TORQUE CONTROL

Rated speed rpm : 1100  
 rack travel mm : 12.05  
 Tolerance mm : + 0.05

Rated speed rpm : 850  
 rack travel mm : 13.30  
 Tolerance mm : + 0.20

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
 Pressure hPa : 1200  
 rack travel mm : 12.05  
 Tolerance mm : + 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100

Pressure hPa : 200  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 47.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

#### BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402936002  
Injection pump  
Pump designation : PES6P120A120RS8013  
EP type number : 0412726018  
Governor  
Governor design. : RQV400...1250PA964K  
Governor no. : 0421815252

Cust. part No. :

## Customer-spec. information

Customer : CDC  
Motor : 6BTA US 94  
Power KW : 172.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413064

Inlet press. bar : 2.5

Test nozzle holde  
assembly : 1688901103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 18.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.05  
Tolerance mm : ± 0.05

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

## GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1470

Rack travel in mm : 9.00  
Tolerance mm :  $\pm$  3.00

---

## FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200

---

## RATED SPEED

control lever  
position degree : 56.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 113.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 11.00  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1435  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1500

---

## LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 13.0  
tolerance degree :  $\pm$  4.0

## Testing:

Rated speed rpm : 400  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

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---

## CONTINUOUS-ACTION CONTROL

Rated speed rpm : 475

---

## TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

---

## ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

Rated speed rpm : 1250  
Pressure hPa : 1200  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

## MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1250

Pressure hPa : 200  
rack travel mm : 9.05  
Tolerance mm :  $\pm$  0.05

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

---

## BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.01.95  
Test oil : ISO 4113  
Combination No. : 0401840776  
Injection pump  
Pump designation : PE12P120A520/4LS3854  
: -1  
EP type number : 0411820730  
Governor  
Governor design. : RQ900PA1196  
Governor no. : 0421801753

Cust. part No. :

Customer-spec. information  
Customer : DAEWOO  
Motor : D2842LE  
Power KW : 260.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1688901105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Lube oil : 1409918004  
Test lines : 1680750089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.25  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6- 7

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 12

## BASIC SETTING

Rated speed rpm : 850  
Rack travel in mm : 12.50  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 4.20  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### RATED SPEED

control lever  
position degree : 90.0  
tolerance degree : ± 4.0

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 12.50  
Tolerance mm : ± 0.05

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 4.20  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.01.95  
Test oil : ISO 4113

Combination No. : 0402646749

Injection pump  
Pump designation : PE6P120A320LS7837  
: -10  
EP type number : 0412626855

Governor  
Governor design. : RQ300/1050PA993-13  
Governor no. : 0421801779

Cust. part No. : 0260744002

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM441 LA  
Power KW : 250.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance L/h : ± 10.0

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1-

Phasing : 0-60-120-180-240  
: -300-360  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.20  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1104  
guide sleeve  
travel mm : 6.34  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 413  
guide sleeve  
travel mm : 4.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 510  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1280  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 100.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 14.10  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200

CRT mm min. :  $>$  8.10

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 15.10  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1100  
rack travel mm : 15.10  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.15  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 400

Pressure hPa : 150  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 550  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.20

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  220  
Check  
speed 1/min :  $<$  240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 550  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

#### BREAKAWAY

Rack travel in mm : 14.10  
Rated speed rpm : 1098

Tolerance 1/min :  $\pm$  8

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.01.95  
Test oil : ISO 4113

Combination No. : 0402646750

Injection pump  
Pump designation : PE6P120A320LS7836  
: -10  
EP type number : 0412626854

Governor  
Governor design. : RQ300/1050PA1031-21  
Governor no. : 0421801772

Cust. part No. : 0260743202

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Customer-spec. information  
Customer : MB-NFZ  
Motor : OM401 LA  
Power KW : 200.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1680750075

G02

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1-

Phasing : 0-60-120-180-240  
: -300-360  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.00  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 190.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 9.0
<hr/>	
2nd speed rpm	: 300
<hr/>	
Rack travel in mm	: 5.80
Tolerance mm	: ± 0.30
Del. quantity cm <sup>3</sup> /1000 strokes	: 19.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 6.0
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 600
<hr/>	
Rack travel in mm	: 20.00
Tolerance mm	: ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 800
Del. quantity cm <sup>3</sup> /1000 strokes	: 190.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	

Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

RATED SPEED

control lever position degree	: 96.0
tolerance degree	: ± 4.0

rack travel mm	: 12.00
Rated speed rpm	: 1098
Tolerance 1/min	: ± 8

rack travel mm	: 4.00
Rated speed rpm	: 1190
Tolerance 1/min	: ± 15

rack travel mm	: 0.75
Tolerance mm	: ± 0.75
Rated speed rpm	: 1300

LOW IDLE

control lever position degree	: 69.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 300
rack travel mm	: 3.50
Tolerance mm	: ± 0.10

rack travel mm	: 2.00
Rated speed rpm	: 350
Tolerance 1/min	: ± 20

Rated speed rpm	: 200
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CRT mm min.	: > 5.10
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TORQUE CONTROL

Rated speed rpm	: 1050
rack travel mm	: 13.00
Tolerance mm	: ± 0.05

Rated speed rpm	: 550
rack travel mm	: 13.00
Tolerance mm	: ± 0.10



---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 400  
Pressure hPa : 800  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400

Pressure hPa : 200  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 350  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.20

---

START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  220  
Check  
speed 1/min :  $<$  240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 350  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Aneroid pressure  
hPa : 800  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 189.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

G04

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.80  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.01.95  
Test oil : ISO 4113  
Combination No. : 0402646751  
Injection pump  
Pump designation : PE6P120A320LS7834  
: -10  
EP type number : 0412626853  
Governor  
Governor design. : RQ300/1050PA1031-20  
Governor no. : 0421801774

Cust. part No. : 0260743402

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM401 LA  
Power KW : 213.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.20  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 7.00  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.93  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1104  
guide sleeve  
travel mm : 6.83  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 732

guide sleeve  
travel mm : 6.13  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 430  
guide sleeve  
travel mm : 4.39  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 540  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1270  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 829  
guide sleeve  
travel mm : 6.38  
Tolerance mm :  $\pm$  0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 000

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 99.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.20  
Rated speed rpm : 1098

Tolerance 1/min : + 8  
 rack travel mm : 4.00  
 Rated speed rpm : 1190  
 Tolerance 1/min : + 15  
 rack travel mm : 0.75  
 Tolerance mm : + 0.75  
 Rated speed rpm : 1300

#### LOW IDLE

control lever  
 position degree : 73.0  
 tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
 rack travel mm : 4.50  
 Tolerance mm : + 0.10

rack travel mm : 2.00  
 Rated speed rpm : 400  
 Tolerance 1/min : + 20

Rated speed rpm : 200  
 CRT mm min. : > 6.10

#### TORQUE CONTROL

Rated speed rpm : 1050  
 rack travel mm : 14.20  
 Tolerance mm : + 0.05

Rated speed rpm : 550  
 rack travel mm : 14.20  
 Tolerance mm : + 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
 Pressure hPa : 800  
 rack travel mm : 14.20  
 Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 400  
 rack travel mm : 10.50

Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 200  
 rack travel mm : 11.65  
 Tolerance mm : + 0.20

Pressure hPa : 350  
 rack travel mm : 13.10  
 Tolerance mm : + 0.20

#### START CUT-OUT

Rated speed rpm : > 100  
 Check  
 speed 1/min : > 80  
 Rated speed rpm : < 220  
 Check  
 speed 1/min : < 240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 750  
 Rated speed rpm : 400  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 150.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5

Aneroid pressure  
 hPa : 800  
 Rated speed rpm : 550  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 197.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 127.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  
 Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 13.20  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.09.94  
Test oil : ISO 4113  
  
Combination No. : 0402646904  
  
Injection pump  
Pump designation : PE6P120A720RS7126  
: -10  
EP type number : 0412626929  
  
Governor  
Governor design. : RQV300...900PA795  
: -10  
Governor no. : 0421813846  
  
Cust. part No. : 1305081

Customer-spec. information  
Customer : SCANIA  
Motor : DS11

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1417413025  
  
Inlet press. bar : 1.5  
  
Test nozzle holde  
assembly : 1688901019  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1680750015  
  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Start-of-delivery setting with ROBO diaphragm.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 4.50  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 970

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### RATED SPEED

control lever  
position degree : 50.0  
tolerance degree : ± 4.0

control lever  
position degree : 108.0  
tolerance degree : ± 4.0

rack travel mm : 13.10  
Rated speed rpm : 945  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1045  
Tolerance 1/min : ± 15

rack travel mm : 7.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1150

#### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : ± 4.0

control lever  
position degree : 19.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 4.50  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 10.00

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 300  
rack travel mm : 2.00

#### TORQUE CONTROL



Rated speed rpm : 700  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 510  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 250  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 224.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.10  
Rated speed rpm : 945  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402736801  
Injection pump  
Pump designation : PES6P110A120RS7186  
EP type number : 0412716800  
Governor  
Governor design. : RQV350...1250PA924  
: -1K  
Governor no. : 0421815226  
Cust. part No. :

## Customer-spec. information

Customer : CDC  
Motor : 6BTA

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413047

Overflow quantity  
min. l/h : 165  
Tolerance l/h : ± 5.0

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 18.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 17.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 350

Rack travel in mm : 4.70  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1375

Rack travel in mm : 9.00  
Tolerance mm : ± 3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 60.0  
tolerance degree : ± 4.0

rack travel mm : 9.50  
Rated speed rpm : 1295  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1375  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1480

##### LOW IDLE

control lever  
position degree : 15.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 4.70  
Tolerance mm : ± 0.10

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 400

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 10.55  
Tolerance mm : ± 0.05

Rated speed rpm : 1100  
rack travel mm : 10.35  
Tolerance mm : ± 0.05

Rated speed rpm : 900  
rack travel mm : 10.20  
Tolerance mm : ± 0.10

Rated speed rpm : 650  
rack travel mm : 4.93  
Tolerance mm :  $\pm$  4.93

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250  
Pressure hPa : 900  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 6.90  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250

Pressure hPa : 200  
rack travel mm : 7.45  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 330  
rack travel mm : 8.60  
Tolerance mm :  $\pm$  0.20

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 9.50  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402736855  
Injection pump  
Pump designation : PES6P120A120RS7206  
EP type number : 0412726835  
Governor  
Governor design. : RGV350...1100PA964  
: -9K  
Governor no. : 0421815425  
Cust. part No. : 3282061

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTA  
Power KW : 190.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 1688901101  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1680750008  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 3.60  
Tolerance mm : + 0.05  
test only : + 0.10  
Rack travel in mm : 17.50  
Tolerance mm : + 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.50

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 9.9  
Tolerance : + 0.10  
Check  
tolerance °NW : + 0.23

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 12.00  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 350

Rack travel in mm : 5.20  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.36  
Tolerance mm : ± 0.25

Rated speed rpm : 1177  
guide sleeve  
travel mm : 8.80  
Tolerance mm : ± 0.25

Rated speed rpm : 828  
guide sleeve  
travel mm : 5.95  
Tolerance mm : ± 0.25

Rated speed rpm : 399  
guide sleeve  
travel mm : 1.98  
Tolerance mm : ± 0.25

Rated speed rpm : 449

guide sleeve  
travel mm : 2.67  
Tolerance mm : ± 0.25

Rated speed rpm : 530  
guide sleeve  
travel mm : 3.46  
Tolerance mm : ± 0.25

Rated speed rpm : 1550  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1375

Rack travel in mm : 11.00  
Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT F<sup>ULL</sup> L LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
position degree : 117.0  
tolerance degree : ± 4.0

rack travel mm : 11.00  
Rated speed rpm : 1165  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1285  
Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200

CRT mm min. :  $>$  6.70

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 325

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1400  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -

Rated speed rpm : 1100  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100

Pressure hPa : 770  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 530  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.20

---

#### START CUT-OUT

Rated speed rpm :  $>$  100

Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  270  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 253.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 5.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 11.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402736856  
Injection pump  
Pump designation : PES6P110A12ORS7213  
EP type number : 0412716804

Governor  
Governor design. : RQV350...1250PA964  
: -26K  
Governor no. : 0421815426

Cust. part No. : 3282240

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTAA  
Power KW : 172.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 7.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 6.0  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 15.10  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 350

Rack travel in mm : 5.70  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.94  
Tolerance mm : ± 0.25

Rated speed rpm : 1346  
guide sleeve  
travel mm : 8.44  
Tolerance mm : ± 0.25

Rated speed rpm : 840  
guide sleeve  
travel mm : 4.58  
Tolerance mm : ± 0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 2.53  
Tolerance mm : ± 0.25

Rated speed rpm : 450

guide sleeve  
travel mm : 2.76  
Tolerance mm : ± 0.25

Rated speed rpm : 1620  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1440

Rack travel in mm : 9.00  
Tolerance mm : ± 3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 123.0  
tolerance degree : ± 4.0

rack travel mm : 15.30  
Rated speed rpm : 1325  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1480  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1600

##### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.40  
Tolerance mm : + 0.10

Rated speed rpm : 250  
CRT mm min. : > 7.20

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 15.10  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 13.70  
Tolerance mm : + 0.10

Rated speed rpm : 1250  
rack travel mm : 16.30  
Tolerance mm : + 0.10

Rated speed rpm : 400  
rack travel mm : 13.70  
Tolerance mm : + 0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1800  
rack travel mm : 16.30  
Tolerance mm : + 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 9.05  
Tolerance mm : + 0.20

Rated speed rpm : 1250

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Pressure hPa : 450  
rack travel mm : 10.75  
Tolerance mm : + 0.20

Pressure hPa : 1150  
rack travel mm : 14.35  
Tolerance mm : + 0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 280  
Check  
speed 1/min : < 300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : 15.30  
Rated speed rpm : 1325  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 162.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 5.70  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
  
Combination No. : 0402736857  
  
Injection pump  
Pump designation : PES6P110A120RS7263  
EP type number : 0412716808

Governor  
Governor design. : RQV350...1250PA964  
                              : -27K  
Governor no. : 0421815427

Cust. part No. : 3282462

---

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTAA  
Power KW : 154.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

---

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05

test only : ± 1.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
                              : 4

Phasing : 0-60-120-180-240  
                              : -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

---

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
  
°NW after s.o.d. : 6.5  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

---

## BASIC SETTING

Rated speed rpm : 1100

---

Rack travel in mm : 13.85

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1440

Rack travel in mm : 9.00  
Tolerance mm :  $\pm$  3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 63.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.50  
Rated speed rpm : 1310  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1450  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1600

##### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 17.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250

CRT mm min. : > 6.50

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 375

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1250  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

rack travel mm : 11.65  
Tolerance mm : + 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250  
Pressure hPa : 1200  
rack travel mm : 14.50  
Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 9.35  
Tolerance mm : + 0.20

Rated speed rpm : 1250

Pressure hPa : 570  
rack travel mm : 11.30  
Tolerance mm : + 0.20

Pressure hPa : 775  
rack travel mm : 13.15  
Tolerance mm : + 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 270  
Check  
speed 1/min : < 290

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

BREAKAWAY

Rack travel in mm : 13.50  
Rated speed rpm : 1310  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.50  
Tolerance mm : + 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.02.95  
Test oil : ISO 4113

Combination No. : 0400074879

Injection pump  
Pump designation : PES4M55C320RS188  
EP type number : 0410054935

Governor  
Governor design. : RSF375/2000M80  
Governor no. : 0420021281

Cust. part No. :

Customer-spec. information  
Customer : MB-PKW  
Motor : OM601-2.3L  
Power KW : 59.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1469990351

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test Lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

G27

x Length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1

°NW after s.o.d. : 15.5  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000s. : ± 1.5



---

## Speed

---

### Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

---

### Check tolerance

cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 400

Rack travel in mm : 4.90

Tolerance mm : ± 0.10

### Del. quantity

cm<sup>3</sup>/1000 strokes : 6.5

### Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

### Speed

### Tolerance

cm<sup>3</sup>/1000 strokes : 1.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

### IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : ± 0.25

---

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

### Ref. pressure

ALDA / ADA hPa : -

### Del. quantity

cm<sup>3</sup>/1000 strokes : 38.5

### Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

### Check tolerance

cm<sup>3</sup>/1000S. : ± 1.5

### Speed

### Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

### Check tolerance

cm<sup>3</sup>/1000S. : 3.0

---

### RATED SPEED

### control lever

position degree : 50.0

rack travel mm : 7.40

Rated speed rpm : 2250

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 2550

---

### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

---

### LOW IDLE

### control lever

position degree : 14.0

tolerance degree : ± 2.0

### Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 4.90

### SET IDLE AUXILIARY SPRING

Rated speed rpm : 500

rack travel mm : 7.40

Tolerance mm : ± 0.10

### Load pick-up

Rated speed rpm : 250

CRT mm min. : > 12.30

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 6.50

Rated speed rpm : 400

---

### TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.15

Tolerance mm : ± 0.05

Rated speed rpm : 2000

rack travel mm : 12.15

Tolerance mm : ± 0.10

---

### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
 ALDA / ADA hPa : -  
 Rated speed rpm : 2000  
 Del. quantity  
 cm3/1000 strokes : 42.0  
 Tolerance  
 cm3/1000 strokes : + 1.0  
 Check tolerance  
 cm3/1000S. : + 2.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.5  
 Check tolerance  
 cm3/1000S. : 3.0

#### HIGH IDLE

Rated speed rpm : 2250  
 rack travel mm : 7.40  
 Tolerance mm : + 0.25  
 Del. quantity  
 cm3/1000 strokes : 24.5  
 Tolerance  
 cm3/1000 strokes : + 2.0  
 Check tolerance  
 cm3/1000S. : + 3.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.5  
 Check tolerance  
 cm3/1000S. : 3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.10  
 Del. quantity  
 cm3/1000 strokes : 54.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 6.0  
 Check tolerance  
 cm3/1000S. : 6.0

#### LOW IDLE

Rated speed rpm : 400  
 rack travel mm : 6.50  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm3/1000 strokes : 7.8

Check tolerance  
 cm3/1000S. : + 2.3  
 Spreed  
 Check tolerance  
 cm3/1000S. : 1.5

#### CHECKING THE IDLE-SPEED AUXILIARY

degree : > 47.00  
 degree : < 44.50

#### SETTING PNEUMATIC FAST IDLE (ELA) (PLA) POSITION

control lever  
 position degree : VWL  
 Rated speed rpm : 425

Rack travel in mm : 8.70  
 Tolerance mm : + 0.80  
 Vacuum hPa : 400.0  
 Vacuum hPa : 400

#### SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever  
 position degree : 14.0  
 tolerance degree : + 2.0

control lever  
 position degree : 50.0

Adjustment of the control-rod travel sensor

control lever  
 position degree : 50.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.01.95  
Test oil : ISO 4113

Combination No. : 0400075929

Injection pump  
Pump designation : PES5M55C320RS177  
EP type number : 0410055974

Governor  
Governor design. : RSF340/2300M64-18  
Governor no. : 0420021159

Cust. part No. :

Customer-spec. information  
Customer : MB-PKW  
Motor : OM602A-USA  
Power KW : 92.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1469990351

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

H02

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 17.0  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.2

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

---

Spread

Tolerance

cm3/1000 strokes : 2.5

---

Check tolerance

cm3/1000S. : 3.0

Rack travel in mm : 6.20

Tolerance mm :  $\pm$  0.10

Del. quantity

cm3/1000 strokes : 8.5

Tolerance

cm3/1000 strokes :  $\pm$  0.5

Spread

Tolerance

cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

IDLE STAGE

Rack travel in mm : 6.50

Tolerance mm :  $\pm$  0.10

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1850

Del. quantity

cm3/1000 strokes : 52.2

Tolerance

cm3/1000 strokes :  $\pm$  0.5

Check tolerance

cm3/1000S. :  $\pm$  1.5

Spread

Tolerance

cm3/1000 strokes : 2.5

Check tolerance

cm3/1000S. : 3.0

---

RATED SPEED

control lever

position degree : 50.0

rack travel mm : 8.70

Rated speed rpm : 2500

rack travel mm : 0.50

H03

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 2950

---

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.75

---

LOW IDLE

control lever

position degree : 10.0

tolerance degree :  $\pm$  2.0

Setting point w/out bumper spring

Rated speed rpm : 315

rack travel mm : 6.20

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400

rack travel mm : 4.60

Tolerance mm :  $\pm$  0.10

Load pick-up

Rated speed rpm : 250

CRT mm min. : > 8.00

Rated speed rpm : 1000

CRT mm max. : 1.75

---

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 13.75

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1600

rack travel mm : 13.10

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 2200

rack travel mm : 12.30

Tolerance mm :  $\pm$  0.10

---

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000  
 Ref. pressure  
 ALDA / ADA hPa : 1600  
 rack travel mm : -0.45  
 Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 1000  
 Ref. pressure  
 ALDA / ADA hPa : 1100  
 rack travel mm : -3.05  
 Tolerance mm : + 0.10

Rated speed rpm : 1000  
 Ref. pressure  
 ALDA / ADA hPa : 750  
 rack travel mm : -5.00  
 Tolerance mm : + 0.20

#### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 1600  
 Del. quantity  
 cm3/1000 strokes : 50.8  
 Tolerance  
 cm3/1000 strokes : + 0.8  
 Check tolerance  
 cm3/1000S. : + 1.8  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.5  
 Check tolerance  
 cm3/1000S. : 3.0

Ref. pressure  
 ALDA / ADA hPa : 1850  
 Rated speed rpm : 2200  
 Spreed  
 Del. quantity  
 cm3/1000 strokes : 49.5  
 Tolerance  
 cm3/1000 strokes : + 1.0  
 Check tolerance  
 cm3/1000S. : + 2.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.5  
 Check tolerance  
 cm3/1000S. : 3.0

Ref. pressure  
 ALDA / ADA hPa : 1100  
 Rated speed rpm : 1000  
 Del. quantity  
 cm3/1000 strokes : 36.5

Tolerance  
 cm3/1000 strokes : + 0.5  
 Check tolerance  
 cm3/1000S. : + 1.5  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.5  
 Check tolerance  
 cm3/1000S. : 3.0

#### HIGH IDLE

Rated speed rpm : 2500  
 rack travel mm : 8.70  
 Tolerance mm : + 0.20  
 Del. quantity  
 cm3/1000 strokes : 32.0  
 Tolerance  
 cm3/1000 strokes : + 2.0  
 Check tolerance  
 cm3/1000S. : + 3.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.5  
 Check tolerance  
 cm3/1000S. : 3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.10  
 Del. quantity  
 cm3/1000 strokes : 54.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 6.0  
 Check tolerance  
 cm3/1000S. : 6.0

#### LOW IDLE

Del. quantity  
 cm3/1000 strokes : 8.7  
 Check tolerance  
 cm3/1000S. : + 2.3  
 Spreed  
 Check tolerance  
 cm3/1000S. : 1.5

#### CHECKING THE IDLE-SPEED AUXILIARY

degree : > 35.50  
degree : < 33.00

---

SETTING/TESTING ELECTRONIC IDLE  
REGULATION (ELR)

control lever  
position degree : 10.0  
tolerance degree :  $\pm$  2.0  
Rated speed rpm : 340

Rack travel in mm : 13.80  
Tolerance mm :  $\pm$  0.70  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 48.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.5

Current A : 1.80

control lever  
position degree : 50.0  
Rated speed rpm : 2950

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.50

Current short-  
duration A : 3.00

Starting test

Rated speed rpm : 100  
Current A : 1.80

---

TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Receiving inspection  
Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 1850  
Set quantity with  
control lever  
cm<sup>3</sup>/1000 strokes : 22.00  
Set quantity with  
control lever  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : 0.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
Voltage Volt : 1.636  
Tolerance Volt :  $\pm$  0.003

Check tolerance  
Volt :  $\pm$  0.001

Adjustment of the control-rod travel  
sensor

control lever  
position degree : 50.0  
Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 1850  
Rack travel in mm  
Voltage Volt : 2.487  
Tolerance Volt :  $\pm$  0.030  
Check tolerance  
Volt :  $\pm$  0.060

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113

Combination No. : 0402646789A

Injection pump  
Pump designation : PE6P120A320LS7846  
EP type number : 0412626865

Governor  
Governor design. : RQ300/1050PA1031-10  
Governor no. : 0421801679

Cust. part No. : 0240740402

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM401 LA  
Power KW : 213.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.20  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 7.00  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

H07

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 99.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.20  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1190  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1700

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200

CRT mm min. :  $>$  6.10

##### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.10



---

# ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

Rated speed rpm : 400  
Pressure hPa : 800  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.05

## MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400

Pressure hPa : 200  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 350  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.20

---

## START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 350  
Rated speed rpm : 400  
Del. quantity  
cm3/1000 strokes : 150.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm3/1000S. :  $\pm$  4.5

Aneroid pressure  
hPa : 800  
Rated speed rpm : 550  
Del. quantity  
cm3/1000 strokes : 197.0  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0

H08

Check tolerance  
cm3/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 127.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

## BREAKAWAY

Rack travel in mm : 13.20  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm3/1000 strokes : 210.0  
Tolerance  
cm3/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm3/1000S. :  $\pm$  19.0

---

## LOW IDLE

Rated speed rpm : 300  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm3/1000 strokes : 19.0  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm3/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000s. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.02.95  
Test oil : ISO 4113

Combination No. : 0400074085

Injection pump  
Pump designation : PES4M55C32ORS106-1  
EP type number : 0410054969

Governor  
Governor design. : RSV400...2200MOC351  
Governor no. : 0420033034

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM616 (2,4 L)  
Power KW : 53.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413012

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test Lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

H10

x Length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

## BASIC SETTING

Rated speed rpm : 1550

Rack travel in mm : 12.55  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 37.0

Tolerance  
cm3/1000 strokes : ± 0.5

Check tolerance  
cm3/1000S. : ± 1.5

Speed

Tolerance  
cm3/1000 strokes : 2.0

Check tolerance  
cm3/1000S. : 3.0

2nd speed rpm : 400

Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 2180  
Ref. pressure  
ALDA / ADA hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 37.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

##### RATED SPEED

control lever  
position degree : 72.0  
rack travel mm : 11.00  
Tolerance 1/min : ± 5  
Rated speed rpm : 2245  
rack travel mm : 4.00  
Rated speed rpm : 2370  
Tolerance 1/min : ± 15  
rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 2550

##### LOW IDLE

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control lever  
position degree : 40.0  
tolerance degree : ± 4.0

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 400  
rack travel mm : 6.50  
Tolerance mm : ± 0.10

rack travel mm : 2.00

##### Load pick-up

rack travel mm : 6.50  
Rated speed rpm : 400

##### TORQUE CONTROL

Rated speed rpm : 1550  
rack travel mm : 12.55  
Tolerance mm : ± 0.05

Rated speed rpm : 1550  
rack travel mm : 12.20  
Tolerance mm : ± 0.10

Rated speed rpm : 1950  
rack travel mm : 12.00  
Tolerance mm : ± 0.10

##### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 1550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

##### BREAKAWAY

Full load CRT mm : 11.00  
Rated speed rpm : 2245  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

#### LOW IDLE

Rated speed rpm : 400  
rack travel mm : 6.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.8  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

---

#### SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever  
position degree : 40.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 72.0

Adjustment of the control-rod travel  
sensor

control lever  
position degree : 72.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.02.95  
Test oil : ISO 4113

Combination No. : 0400074910

Injection pump  
Pump designation : PES4M55C320RS107-2  
EP type number : 0410054962

Governor  
Governor design. : RSF375/1700M18-1  
Governor no. : 0420021028

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM616 (2.4 L)  
Power KW : 45.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413012

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

H13

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

## BASIC SETTING

Rated speed rpm : 1650

Rack travel in mm : 11.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 37.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 375

Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

IDLE STAGE

Rack travel in mm : 6.00  
Tolerance mm : ± 0.15

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1650  
Ref. pressure  
ALDA / ADA hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 37.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

---

RATED SPEED

control lever  
position degree : 50.0

rack travel mm : 7.20  
Rated speed rpm : 1900

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 2350

---

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 700

CRT mm max. : 1.45

---

LOW IDLE

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450  
rack travel mm : 4.90  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 770  
Tolerance 1/min : ± 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : > 11.00

Rated speed rpm : 700

CRT mm max. : 1.45

rack travel mm : 6.10  
Rated speed rpm : 375

---

TORQUE CONTROL

Rated speed rpm : 1650  
rack travel mm : 11.95  
Tolerance mm : ± 0.05

Rated speed rpm : 1200  
rack travel mm : 12.20  
Tolerance mm : ± 0.10

Rated speed rpm : 600  
rack travel mm : 12.90  
Tolerance mm : ± 0.10

---

FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 600  
Spreed  
Del. quantity  
cm3/1000 strokes : 36.5  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000s. : +- 2.0  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000s. : 3.0

degree : > 47.00  
degree : < 30.00

---

#### HIGH IDLE

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 1900  
rack travel mm : 7.20  
Tolerance mm : +- 0.20

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.10  
Del. quantity  
cm3/1000 strokes : 53.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000s. : 6.0

---

#### LOW IDLE

Rated speed rpm : 375  
rack travel mm : 6.10  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 8.3  
Check tolerance  
cm3/1000s. : +- 1.8  
Spreed  
Check tolerance  
cm3/1000s. : 1.5

---

#### CHECKING THE IDLE-SPEED AUXILIARY



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.02.95  
Test oil : ISO 4113

Combination No. : 0400074922

Injection pump  
Pump designation : PES4M55C320RS107-2  
EP type number : 0410054962

Governor  
Governor design. : RSF375/2250M18  
Governor no. : 0420021017

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM616 (2.4 L)  
Power KW : 53.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413012

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

Speed

Tolerance  
cm3/1000 strokes : 2.5

Check tolerance  
cm3/1000S. : 3.0

2nd speed rpm : 375

Del. quantity  
cm3/1000 strokes : 8.0

Tolerance  
cm3/1000 strokes :  $\pm$  0.5

Spreed  
Tolerance  
cm3/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.15

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Ref. pressure

ALDA / ADA hPa : -

Del. quantity  
cm3/1000 strokes : 39.0

Tolerance  
cm3/1000 strokes :  $\pm$  0.5

Check tolerance  
cm3/1000S. :  $\pm$  1.5

Spreed  
Tolerance

cm3/1000 strokes : 2.5

Check tolerance  
cm3/1000S. : 3.0

##### RATED SPEED

control lever  
position degree : 50.0

rack travel mm : 8.00  
Rated speed rpm : 2500

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 2950

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

##### LOW IDLE

control lever  
position degree : 11.0  
tolerance degree :  $\pm$  2.0

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 450  
rack travel mm : 5.00

Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00

Rated speed rpm : 770

Tolerance 1/min :  $\pm$  50

##### Load pick-up

Rated speed rpm : 250

CRT mm min. :  $>$  10.50

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 6.20

Rated speed rpm : 375

##### TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 13.00

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1800

rack travel mm : 12.10

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 2200

rack travel mm : 11.80

Tolerance mm :  $\pm$  0.10

##### FUEL DELIVERY CHARACTERISTICS

Ref. pressure

ALDA / ADA hPa : -

Rated speed rpm : 1800  
 Del. quantity  
 cm3/1000 strokes : 38.5  
 Tolerance  
 cm3/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm3/1000S. :  $\pm$  2.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.5  
 Check tolerance  
 cm3/1000S. : 3.0

Ref. pressure  
 ALDA / ADA hPa : -  
 Rated speed rpm : 2200  
 Spreed  
 Del. quantity  
 cm3/1000 strokes : 39.0  
 Tolerance  
 cm3/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm3/1000S. :  $\pm$  2.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.5  
 Check tolerance  
 cm3/1000S. : 3.0

#### HIGH IDLE

Rated speed rpm : 2500  
 rack travel mm : 8.00  
 Tolerance mm :  $\pm$  0.20  
 Del. quantity  
 cm3/1000 strokes : 23.0  
 Tolerance  
 cm3/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm3/1000S. :  $\pm$  3.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.5  
 Check tolerance  
 cm3/1000S. : 3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.10  
 Del. quantity  
 cm3/1000 strokes : 53.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 6.0

Check tolerance  
 cm3/1000S. : 6.0

#### LOW IDLE

Rated speed rpm : 375  
 rack travel mm : 6.20  
 Tolerance mm :  $\pm$  0.10  
 Del. quantity  
 cm3/1000 strokes : 8.8  
 Check tolerance  
 cm3/1000S. :  $\pm$  1.8  
 Spreed  
 Check tolerance  
 cm3/1000S. : 1.5

#### CHECKING THE IDLE-SPEED AUXILIARY

degree : > 47.00  
 degree : < 30.00

#### SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever  
 position degree : 11.0  
 tolerance degree :  $\pm$  2.0

control lever  
 position degree : 50.0

Adjustment of the control-rod travel sensor

control lever  
 position degree : 50.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.02.95  
Test oil : ISO 4113

Combination No. : 0400074925

Injection pump  
Pump designation : PES4M55C320RS107-1  
EP type number : 0410054977

Governor  
Governor design. : RSF375/2200M18-2  
Governor no. : 0420021058

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM616  
Power KW : 50.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413012

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

H19

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 375

Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.00  
Tolerance mm : ± 0.15

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

RATED SPEED

control lever  
position degree : 50.0  
  
rack travel mm : 8.40  
Rated speed rpm : 2500  
  
rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000  
  
CRT mm max. : 1.95

LOW IDLE

H2O

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450  
rack travel mm : 4.90  
Tolerance mm : ± 0.10

rack travel mm : 2.50  
Rated speed rpm : 750  
Tolerance 1/min : ± 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : > 11.00

Rated speed rpm : 1000

CRT mm max. : 1.95

rack travel mm : 6.60  
Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 13.25  
Tolerance mm : ± 0.05

Rated speed rpm : 1800  
rack travel mm : 12.70  
Tolerance mm : ± 0.10

Rated speed rpm : 2200  
rack travel mm : 12.20  
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 1800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 2200  
Spreed  
Del. quantity  
cm3/1000 strokes : 40.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 2.0  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

degree : > 47.00  
degree : < 30.00

---

#### HIGH IDLE

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 2500  
rack travel mm : 8.40  
Tolerance mm : +- 0.20

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.30  
Del. quantity  
cm3/1000 strokes : 53.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 6.0

---

#### LOW IDLE

Rated speed rpm : 375  
rack travel mm : 6.60  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 8.3  
Check tolerance  
cm3/1000S. : +- 1.8  
Spreed  
Check tolerance  
cm3/1000S. : 1.5

---

#### CHECKING THE IDLE-SPEED AUXILIARY

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.02.95  
Test oil : ISO 4113

Combination No. : 0400075010

Injection pump  
Pump designation : PES5M55C320RS176  
EP type number : 0410055975

Governor  
Governor design. : RSV350...1500MOC353  
: -9  
Governor no. : 0420033045

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM602 (2,9L)  
Power KW : 54.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1469990351

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1

\*NW after s.o.d. : 15.5  
Tolerance : ± 0.20  
Check  
tolerance \*NW : ± 0.30

## BASIC SETTING

Rated speed rpm : 1480

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 1.5

---

Spreed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 350

Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 1.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : + 0.35

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1480

Ref. pressure

ALDA / ADA hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 1.5

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

---

RATED SPEED

control lever  
position degree : 101.0

rack travel mm : 1.00

Tolerance mm : + 0.70

Rated speed rpm : 1750

---

LOW IDLE

control lever

position degree : 69.0

tolerance degree : + 4.0

SET IDLE AUXILIARY SPRING

Rated speed rpm : 350

rack travel mm : 5.40

Tolerance mm : + 0.10

Load pick-up

Rated speed rpm : 100

CRT mm min. : > 20.10

rack travel mm : 5.40

Rated speed rpm : 350

SET IDLE AUXILIARY SPRING

Rated speed rpm : 100

---

TORQUE CONTROL

Rated speed rpm : 1480

rack travel mm : 11.35

Tolerance mm : + 0.05

Rated speed rpm : 1000

rack travel mm : 12.60

Tolerance mm : + 0.10

Rated speed rpm : 1300

rack travel mm : 11.50

Tolerance mm : + 0.10

---

FUEL DELIVERY CHARACTERISTICS

Ref. pressure

ALDA / ADA hPa : -

Rated speed rpm : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 0.8

Check tolerance  
cm<sup>3</sup>/1000S. : + 1.8

Spreed



Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 1300  
Spreed  
Del. quantity  
cm3/1000 strokes : 36.5  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 2.0  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

control lever  
position degree : 69.0  
tolerance degree : +- 4.0

control lever  
position degree : 101.0

Adjustment of the control-rod travel  
sensor

control lever  
position degree : 101.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.10  
Del. quantity  
cm3/1000 strokes : 52.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 6.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 5.40  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 7.8  
Check tolerance  
cm3/1000S. : +- 2.3  
Spreed  
Check tolerance  
cm3/1000S. : 1.5

---

#### SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.02.95  
Test oil : ISO 4113

Combination No. : 0400075012

Injection pump  
Pump designation : PES5M55C320RS182  
EP type number : 0410055973

Governor  
Governor design. : RSV350...1350MOC354  
Governor no. : 0420033048

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM602A-ECE  
Power KW : 92.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1469990351

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 17.90  
Tolerance mm : ± 0.40

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1

°NW after s.o.d. : 19.5  
Tolerance : ± 0.20

Check  
tolerance °NW : ± 0.30

## BASIC SETTING

Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000s. : ± 1.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 350

Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : ± 0.35

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1330

Ref. pressure  
ALDA / ADA hPa : 1850

Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

##### RATED SPEED

rack travel mm : 12.60

Rated speed rpm : 1370

rack travel mm : 4.00

Rated speed rpm : 1470

rack travel mm : 1.00

Tolerance mm : ± 0.70

Rated speed rpm : 1750

##### LOW IDLE

##### SET IDLE AUXILIARY SPRING

H26

Rated speed rpm : 350

rack travel mm : 5.20

Tolerance mm : ± 0.20

##### Load pick-up

rack travel mm : 5.20

Rated speed rpm : 350

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 350

rack travel mm : 2.00

##### ADJUSTMENT TEST ADA/ALDA

##### SETTING

Rated speed rpm : 800

Ref. pressure  
ALDA / ADA hPa : 1550

rack travel mm : 0.45

Tolerance mm : ± 0.25

##### MEASUREMENT

Rated speed rpm : 800

Ref. pressure  
ALDA / ADA hPa : 1050

rack travel mm : 3.65

Tolerance mm : ± 0.15

##### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1850

Rated speed rpm : 800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.8

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.8

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.8

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : 1050

Rated speed rpm : 800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 34.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 1.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

---

#### BREAKAWAY

Full load CRT mm : 12.60  
Rated speed rpm : 1370

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 16.10  
Tolerance mm : +- 0.40  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 5.20  
Tolerance mm : +- 0.20

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.02.95  
Test oil : ISO 4113

Combination No. : 0400075972

Injection pump  
Pump designation : PES5M55C320RS108-3  
EP type number : 0410055982

Governor  
Governor design. : RSF350/2300M15  
Governor no. : 0420021014

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM617 (3.0 L)  
Power KW : 65.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413012

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 350

Del. quantity  
cm3/1000 strokes : 7.5  
Tolerance  
cm3/1000 strokes :  $\pm$  0.5  
Speed  
Tolerance  
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.15

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : -  
Del. quantity  
cm3/1000 strokes : 39.0  
Tolerance  
cm3/1000 strokes :  $\pm$  0.5  
Check tolerance  
cm3/1000s. :  $\pm$  1.5  
Speed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000s. : 3.0

RATED SPEED

control lever  
position degree : 50.0  
rack travel mm : 8.00  
Rated speed rpm : 2500  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000  
CRT mm max. : 1.45

LOW IDLE

J01

control lever  
position degree : 11.0  
tolerance degree :  $\pm$  2.0

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 770  
Tolerance 1/min :  $\pm$  50

Load pick-up

Rated speed rpm : 250

CRT mm min. :  $>$  9.50

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 6.20  
Rated speed rpm : 550

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1800  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 2200  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10

FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 1800  
Del. quantity  
cm3/1000 strokes : 38.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000s. :  $\pm$  2.0

Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 2200  
Spreed  
Del. quantity  
cm3/1000 strokes : 39.5  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 2.0  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

---

#### HIGH IDLE

Rated speed rpm : 2500  
rack travel mm : 8.00  
Tolerance mm : + 0.20  
Del. quantity  
cm3/1000 strokes : 22.0  
Tolerance  
cm3/1000 strokes : + 2.0  
Check tolerance  
cm3/1000S. : + 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.10  
Del. quantity  
cm3/1000 strokes : 53.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 6.0

---

#### LOW IDLE

J02

Rated speed rpm : 350  
rack travel mm : 6.20  
Tolerance mm : + 0.10  
Del. quantity  
cm3/1000 strokes : 8.3  
Check tolerance  
cm3/1000S. : + 1.8  
Spreed  
Check tolerance  
cm3/1000S. : 1.5

---

#### CHECKING THE IDLE-SPEED AUXILIARY

degree : > 47.00  
degree : < 30.00

---

#### SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever  
position degree : 11.0  
tolerance degree : + 2.0

control lever  
position degree : 50.0

Adjustment of the control-rod travel  
sensor

control lever  
position degree : 50.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.02.95  
Test oil : ISO 4113

Combination No. : 0400075973

Injection pump  
Pump designation : PES5M55C320RS108-2  
EP type number : 0410055984

Governor  
Governor design. : RSF350/1700M18-3  
Governor no. : 0420021061

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM617 (3.0 L)  
Power KW : 54.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413012

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test Lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

## BASIC SETTING

Rated speed rpm : 1650

Rack travel in mm : 11.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 37.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 350



Del. quantity  
cm3/1000 strokes : 7.5  
Tolerance  
cm3/1000 strokes :  $\pm$  0.5  
Spreed  
Tolerance  
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.15

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1650  
Ref. pressure  
ALDA / ADA hPa : -  
Del. quantity  
cm3/1000 strokes : 37.0  
Tolerance  
cm3/1000 strokes :  $\pm$  0.5  
Check tolerance  
cm3/1000S. :  $\pm$  1.5  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

RATED SPEED

control lever  
position degree : 50.0  
  
rack travel mm : 7.00  
Rated speed rpm : 1900  
  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 2350

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 600  
CRT mm max. : 1.45

LOW IDLE

control lever  
position degree : 12.0  
tolerance degree :  $\pm$  2.0

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 750  
Tolerance 1/min :  $\pm$  50

Load pick-up

Rated speed rpm : 250

CRT mm min. :  $>$  10.00

Rated speed rpm : 600

CRT mm max. : 1.45

rack travel mm : 5.10  
Rated speed rpm : 550

TORQUE CONTROL

Rated speed rpm : 1650  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1200  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10

FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 1200  
Del. quantity  
cm3/1000 strokes : 35.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  2.0

Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 600  
Spreed  
Del. quantity  
cm3/1000 strokes : 36.5  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 2.0  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

---

#### HIGH IDLE

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 1900  
rack travel mm : 7.00  
Tolerance mm : + 0.20

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.10  
Del. quantity  
cm3/1000 strokes : 53.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 6.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 6.10  
Tolerance mm : + 0.10  
Del. quantity  
cm3/1000 strokes : 8.3  
Check tolerance  
cm3/1000S. : + 1.8  
Spreed

Check tolerance  
cm3/1000S. : 1.5

---

#### CHECKING THE IDLE-SPEED AUXILIARY

degree : > 47.00  
degree : < 30.00

---

#### SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever  
position degree : 12.0  
tolerance degree : + 2.0

control lever  
position degree : 50.0

Adjustment of the control-rod travel  
sensor

control lever  
position degree : 50.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.02.95  
Test oil : ISO 4113  
  
Combination No. : 0401846971  
  
Injection pump  
Pump designation : PE6P110A320RS3302Z  
EP type number : 0411816789  
  
Governor  
Governor design. : RQ300/1000PA1012-1  
Governor no. : 0421801648

Cust. part No. : 1266367

Customer-spec. information  
Customer : DAF  
Motor : LS 195 M  
Power KW : 195.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 14.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 13.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

2nd speed rpm : 300

Rack travel in mm : 7.50  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.07  
Tolerance mm : + 0.10

Rated speed rpm : 1060  
guide sleeve  
travel mm : 6.35  
Tolerance mm : + 0.10

Rated speed rpm : 1000  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 373  
guide sleeve  
travel mm : 5.01  
Tolerance mm : + 0.10

Rated speed rpm : 440  
guide sleeve  
travel mm : 6.00

Tolerance mm : + 0.10

Rated speed rpm : 1210  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

RATED SPEED

control lever  
position degree : 97.0  
tolerance degree : + 4.0

rack travel mm : 12.95  
Rated speed rpm : 1052  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1125  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1250

---

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

### Testing:

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 350  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200

CRT mm min. :  $>$  10.00

---

### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.10

---

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600

Pressure hPa : 480  
rack travel mm : 13.55  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 340  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

---

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

### BREAKAWAY

Rack travel in mm : 12.95  
Rated speed rpm : 1052  
Tolerance 1/min :  $\pm$  8

---

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 750.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  23.0

---

### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 7.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.02.95  
Test oil : ISO 4113

Combination No. : 0401846972

Injection pump  
Pump designation : PE6P110A320RS3302Y  
EP type number : 0411816790

Governor  
Governor design. : RQ300/1000PA1012-1  
Governor no. : 0421801648

Cust. part No. : 1253697

## Customer-spec. information

Customer : DAF  
Motor : LT 160 L  
Power KW : 160.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 13.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

2nd speed rpm : 300

Rack travel in mm : 7.50  
Tolerance mm : + 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.08  
Tolerance mm : + 0.10

Rated speed rpm : 1060  
guide sleeve  
travel mm : 6.36  
Tolerance mm : + 0.10

Rated speed rpm : 1000  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 372  
guide sleeve  
travel mm : 5.03  
Tolerance mm : + 0.10

Rated speed rpm : 440  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1210

guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### RATED SPEED

control lever  
position degree : 99.0  
tolerance degree : + 4.0

rack travel mm : 12.05  
Rated speed rpm : 1052  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1120  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 6.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.50  
Rated speed rpm : 370  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200  
CRT mm min. :  $>$  11.00

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600

Pressure hPa : 360  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 270  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 109.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

#### BREAKAWAY

Rack travel in mm : 12.05  
Rated speed rpm : 1052  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 350.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  23.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 7.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.02.95  
Test oil : ISO 4113  
Combination No. : 0402646612  
Injection pump  
Pump designation : PE6P120A32ORS7248  
: -10X  
EP type number : 0412626907  
Governor  
Governor design. : RQ275/1150PA987  
Governor no. : 0421801578

Cust. part No. : 1278688/3

Customer-spec. information  
Customer : DAF  
Motor : RS 200 M  
Power KW : 200.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 11.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 275

Rack travel in mm : 5.40  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.92  
Tolerance mm : + 0.10

Rated speed rpm : 1206  
guide sleeve  
travel mm : 6.49  
Tolerance mm : + 0.10

Rated speed rpm : 1150  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 351  
guide sleeve  
travel mm : 4.25  
Tolerance mm : + 0.10

Rated speed rpm : 440  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1360  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 550

Rack travel in mm : 15.80  
Tolerance mm : + 0.60

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 102.0  
tolerance degree : + 4.0

rack travel mm : 10.75  
Rated speed rpm : 1192  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1270  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1450

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.90  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min : ± 20

Rated speed rpm : 175

CRT mm min. : > 7.00

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.75  
Tolerance mm : ± 0.05

Rated speed rpm : 1150  
rack travel mm : 11.75  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 11.75  
Tolerance mm : ± 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 9.50  
Tolerance mm : ± 0.10

Rated speed rpm : 600

Pressure hPa : 340  
rack travel mm : 11.25  
Tolerance mm : ± 0.05

Pressure hPa : 200  
rack travel mm : 10.20  
Tolerance mm : ± 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 10.75  
Rated speed rpm : 1192  
Tolerance 1/min : ± 8

---

#### LOW IDLE

Rated speed rpm : 275  
rack travel mm : 5.40  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.02.95  
Test oil : ISO 4113  
  
Combination No. : 0402646613  
  
Injection pump  
Pump designation : PE6P120A32ORS7248  
: -10W  
EP type number : 0412626908  
  
Governor  
Governor design. : RQ275/1150PA987  
Governor no. : 0421801578

Cust. part No. : 1278684/3

Customer-spec. information  
Customer : DAF  
Motor : RS 180 M  
Power KW : 180.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0

Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 4.0
Speed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0
2nd speed rpm	: 275
Rack travel in mm	: 5.40
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes	: 16.0
Tolerance	
cm3/1000 strokes	: + 3.0
Check tolerance	
cm3/1000S.	: + 6.0
Speed	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve	
travel mm	: 1.95
Tolerance mm	: + 0.10
Rated speed rpm	: 1205
guide sleeve	
travel mm	: 6.51
Tolerance mm	: + 0.10
Rated speed rpm	: 1150
guide sleeve	
travel mm	: 6.00
Tolerance mm	: + 0.10
Rated speed rpm	: 351
guide sleeve	
travel mm	: 4.27
Tolerance mm	: + 0.10
Rated speed rpm	: 440
guide sleeve	
travel mm	: 6.00

Tolerance mm	: + 0.10
Rated speed rpm	: 1360
guide sleeve	
travel mm	: 11.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 550
Rack travel in mm	: 15.80
Tolerance mm	: + 0.60

FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure	
hPa	: -
Del. quantity	
cm3/1000 strokes	: 154.0
Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 4.0
Speed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

RATED SPEED

control lever	
position degree	: 99.0
tolerance degree	: + 4.0
rack travel mm	: 9.75
Rated speed rpm	: 1192
Tolerance 1/min	: + 8
rack travel mm	: 4.00
Rated speed rpm	: 1265
Tolerance 1/min	: + 15
rack travel mm	: 0.70
Tolerance mm	: + 0.70
Rated speed rpm	: 1450

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 175

CRT mm min. :  $>$  7.00

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600

Pressure hPa : 300  
rack travel mm : 10.45  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 240  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 9.75  
Rated speed rpm : 1192  
Tolerance 1/min :  $\pm$  8

---

#### LOW IDLE

Rated speed rpm : 275  
rack travel mm : 5.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.02.95  
Test oil : ISO 4113

Combination No. : 0402646614

Injection pump  
Pump designation : PE6P120A320RS7248  
: -10W  
EP type number : 0412626908

Governor  
Governor design. : RQV275...1150PA986  
Governor no. : 0421813920

Cust. part No. : 1280139/3

## Customer-spec. information

Customer : DAF  
Motor : RS 180 M  
Power KW : 180.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 130  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.75  
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes :	154.0
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 4.0
<hr/>	
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	5.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	9.0
<hr/>	
2nd speed rpm	: 275
<hr/>	
Rack travel in mm :	5.40
Tolerance mm :	+ 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes :	16.0
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 3.0
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 6.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	8.0
Check tolerance	
cm <sup>3</sup> /1000S. :	12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve	
travel mm	: 1.44
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 1206
guide sleeve	
travel mm	: 8.24
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 799
guide sleeve	
travel mm	: 5.21
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 315
guide sleeve	
travel mm	: 1.98
Tolerance mm	: + 0.25

Rated speed rpm	: 365
guide sleeve	
travel mm	: 2.52
Tolerance mm	: + 0.25

Rated speed rpm	: 450
guide sleeve	
travel mm	: 3.07
Tolerance mm	: + 0.25

Rated speed rpm	: 1500
guide sleeve	
travel mm	: 11.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1350

Rack travel in mm :	9.70
Tolerance mm :	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure	
hPa	: -
Del. quantity	
cm <sup>3</sup> /1000 strokes :	154.0
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 1.0
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 4.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	5.0
Check tolerance	
cm <sup>3</sup> /1000S. :	9.0

RATED SPEED

control lever	
position degree	: 118.0
tolerance degree	: + 4.0
<hr/>	
rack travel mm	: 9.75
Rated speed rpm	: 1192
Tolerance 1/min	: + 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1290
Tolerance 1/min	: + 15



rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 175  
CRT mm min. :  $>$  7.40

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 340

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : 300  
Rated speed rpm : 600  
rack travel mm : 10.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600

Pressure hPa : -

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rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 240  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 9.75  
Rated speed rpm : 1102  
Tolerance 1/min :  $\pm$  5

---

#### LOW IDLE

Rated speed rpm : 275  
rack travel mm : 5.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.02.95  
Test oil : ISO 4113

Combination No. : 0402646615

Injection pump  
Pump designation : PE6P120A320RS7248  
: -10X  
EP type number : 0412626907

Governor  
Governor design. : RQV275...1150PA986  
Governor no. : 0421813920

Cust. part No. : 1280141/3

## Customer-spec. information

Customer : DAF  
Motor : RS 200 M  
Power KW : 200.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 130  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 11.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## EASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.75  
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes :	172.0
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
<hr/>	
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	5.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0
<hr/>	
2nd speed rpm	: 275
<hr/>	
Rack travel in mm :	5.40
Tolerance mm :	+ 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes :	16.0
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 6.0
<hr/>	
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve	
travel mm	: 1.44
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 1206
guide sleeve	
travel mm	: 8.24
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 799
guide sleeve	
travel mm	: 5.21
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 315
guide sleeve	
travel mm	: 1.98
Tolerance mm	: + 0.25

Rated speed rpm	: 365
guide sleeve	
travel mm	: 2.52
Tolerance mm	: + 0.25

Rated speed rpm	: 450
guide sleeve	
travel mm	: 3.07
Tolerance mm	: + 0.25

Rated speed rpm	: 1500
guide sleeve	
travel mm	: 11.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1335

Rack travel in mm :	10.30
Tolerance mm :	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure	
hPa	: -
Del. quantity	
cm <sup>3</sup> /1000 strokes :	172.0
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
<hr/>	
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

RATED SPEED

control lever	
position degree	: 119.0
tolerance degree	: + 4.0

rack travel mm	: 10.75
Rated speed rpm	: 1192
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1305
Tolerance 1/min	: + 15

rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 175

CRT mm min. :  $>$  7.40

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 368

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600

Pressure hPa : 340

rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 200  
rack travel mm : 10.20  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.75  
Rated speed rpm : 1192  
Tolerance 1/min :  $\pm$  5

---

#### LOW IDLE

Rated speed rpm : 275  
rack travel mm : 5.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.02.95  
Test oil : ISO 4113  
  
Combination No. : 0402646624  
  
Injection pump  
Pump designation : PE6P120A320RS7299  
EP type number : 0412626885  
  
Governor  
Governor design. : RQV275...1000PA1075K  
Governor no. : 0421815356

Cust. part No. : 1280155

Customer-spec. information  
Customer : DAF  
Motor : WS 295 M  
Power kW : 295.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
  
test only : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 14.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 279.0

---

Tolerance  
cm3/1000 strokes : + 1.0

---

Check tolerance  
cm3/1000S. : + 4.0

---

Spread  
Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

2nd speed rpm : 275

Rack travel in mm : 5.60  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 17.0

Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0

Spread  
Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.14  
Tolerance mm : + 0.15

Rated speed rpm : 1046  
guide sleeve  
travel mm : 9.83  
Tolerance mm : + 0.20

Rated speed rpm : 689  
guide sleeve  
travel mm : 6.43  
Tolerance mm : + 0.25

Rated speed rpm : 284  
guide sleeve  
travel mm : 2.27  
Tolerance mm : + 0.25

Rated speed rpm : 334  
guide sleeve  
travel mm : 3.17

Tolerance mm : + 0.25

Rated speed rpm : 390  
guide sleeve  
travel mm : 3.79  
Tolerance mm : + 0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1135

Rack travel in mm : 13.60  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 279.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0  
Spread  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 121.0  
tolerance degree : + 4.0

rack travel mm : 13.45  
Rated speed rpm : 1032  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1160  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1275

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 175

CRT mm min. :  $>$  7.80

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 275

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 14.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 14.35  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 980  
rack travel mm : 9.00

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 980

Pressure hPa : 840  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 430  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 284.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.45  
Rated speed rpm : 1032  
Tolerance 1/min :  $\pm$  5

---

#### LOW IDLE

Rated speed rpm : 275  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 17.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0





# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.02.95  
Test oil : ISO 4113  
Combination No. : 0402646658  
Injection pump  
Pump designation : PE6P130A720RS7371  
EP type number : 0412636837  
Governor  
Governor design. : RQV250...900PA1215  
Governor no. : 0421814139  
Cust. part No. : 3825482  
: -P01 11.01.95

Customer-spec. information  
Customer : PENTA  
Motor : TAMD 163 A  
Power KW : 405.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1457413010  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Test nozzle holde  
assembly : 4688901105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test Lines : 1680750089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.35  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 7.80  
Tolerance mm : ± 0.50  
Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 900  
Rack travel in mm : 13.20  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 379.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.12  
Tolerance mm : + 0.25

Rated speed rpm : 959  
guide sleeve  
travel mm : 8.22  
Tolerance mm : + 0.25

Rated speed rpm : 315  
guide sleeve  
travel mm : 1.98  
Tolerance mm : + 0.25

Rated speed rpm : 365  
guide sleeve  
travel mm : 2.47  
Tolerance mm : + 0.25

Rated speed rpm : 650  
guide sleeve  
travel mm : 4.40  
Tolerance mm : + 0.25

Rated speed rpm : 1160  
guide sleeve  
travel mm : 11.50

K01

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1030

Rack travel in mm : 11.00  
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 379.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

RATED SPEED

control lever  
position degree : 64.0  
tolerance degree : + 4.0

control lever  
position degree : 119.0  
tolerance degree : + 4.0

rack travel mm : 12.20  
Rated speed rpm : 945  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1030  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1120

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 17.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 250  
rack travel mm : 6.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 150

CRT mm min. :  $>$  8.30

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 7.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 900  
rack travel mm : 6.10  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 170  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 406.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

#### BREAKAWAY

Rack travel in mm : 12.20  
Rated speed rpm : 945  
Tolerance 1/min :  $\pm$  5

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.02.95  
Test oil : ISO 4113

Combination No. : 0402736810

Injection pump  
Pump designation : PES6P110A120RS7213  
EP type number : 0412716804

Governor  
Governor design. : RQV400...1250PA964  
: -2K  
Governor no. : 0421815254

Cust. part No. : 3921777

## Customer-spec. information

Customer : CDC  
Motor : 6BTA-A  
Power KW : 141.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 120  
Tolerance l/h : ± 5.0

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
S.o.d. blocking  
Barrel no. : 1

°NW after s.o.d. : 6.0  
Tolerance : ± 0.10

Check  
tolerance \*NW : + 0.23

---

#### BASIC SETTING

Rated speed rpm : 1250

---

Rack travel in mm : 14.85  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

Rated speed rpm : 1450

Rack travel in mm : 13.80  
Tolerance mm : + 1.30

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### RATED SPEED

control lever  
position degree : 63.0  
tolerance degree : + 4.0

control lever  
position degree : 119.0  
tolerance degree : + 4.0

rack travel mm : 13.80  
Rated speed rpm : 1300  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1475  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1600

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : + 4.0

control lever  
position degree : 15.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 400  
rack travel mm : 5.50  
Tolerance mm : + 0.10

Rated speed rpm : 275

CRT mm min. : > 7.20

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 423

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 14.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1200  
rack travel mm : 14.85  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Rated speed rpm : 1250  
  
Pressure hPa : 690  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.20  
  
Pressure hPa : 365  
rack travel mm : 10.25  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 290  
Check  
speed 1/min : < 300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 161.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

K05

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.80  
Rated speed rpm : 1300  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.02.95  
Test oil : ISO 4113  
Combination No. : 0402736862  
Injection pump  
Pump designation : PES6P110A120RS7214  
EP type number : 0412716805  
Governor  
Governor design. : RQV350...1200PA964  
: -30K  
Governor no. : 0421815432  
Cust. part No. : 3282469

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTA-A  
Power KW : 213.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1417413047  
Inlet press. bar : 1.5  
Overflow quantity  
min. l/h : 120  
Tolerance l/h : ± 5.0  
Test nozzle holder  
assembly : 1688901101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.40  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 6.0  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1100

---

Rack travel in mm : 14.75  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 192.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1260

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 192.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### RATED SPEED

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 122.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.20  
Rated speed rpm : 1250  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1405  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1500

---

##### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 15.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 275

CRT mm min. : > 7.20

---

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 423

---

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1200



rack travel mm : 14.30  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 14.75  
Tolerance mm : ± 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 8.00  
Tolerance mm : ± 0.20

Rated speed rpm : 1100

Pressure hPa : 785  
rack travel mm : 13.00  
Tolerance mm : ± 0.20

Pressure hPa : 335  
rack travel mm : 9.65  
Tolerance mm : ± 0.05

---

##### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 290  
Check  
speed 1/min : < 300

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

##### BREAKAWAY

Rack travel in mm : 13.20  
Rated speed rpm : 1250  
Tolerance 1/min : ± 5

---

##### STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.02.95  
Test oil : ISO 4113

Combination No. : 0403476127

Injection pump  
Pump designation : PES6MW100/720RS1205  
EP type number : 0413406195

Governor  
Governor design. : RSV750...1250MWOA325  
: -5

Governor no. : 0420085208

Cust. part No. : 0240743402

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM 366 LA  
Power kW : 185.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 17.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1230

Rack travel in mm : 15.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

2nd speed rpm : 750

Rack travel in mm : 5.20

Tolerance mm :  $\pm$  0.50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm :  $\pm$  0.35

governor spring  
pre-tension  
click setting x : 1.80

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1230  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### RATED SPEED

control lever  
position degree : 94.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1310

#### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 750  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.30

rack travel mm : 2.00

Rated speed rpm : 100

CRT mm min. : > 19.00

#### TORQUE CONTROL

Rated speed rpm : 1230  
rack travel mm : 15.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 15.25  
Tolerance mm :  $\pm$  0.10

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 115.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 8.0

---

LOW IDLE

Rated speed rpm : 750  
rack travel mm : 5.20  
Tolerance mm : + 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.03.95  
Test oil : ISO 4113  
Combination No. : 0402746988  
Injection pump  
Pump designation : PES6P120A320LS7322  
EP type number : 0412726904  
Governor  
Governor design. : RQV350...1150PA1140K  
Governor no. : 0421815409

Cust. part No. : 1823136C91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DTA-466  
Power KW : 139.5

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413076

Inlet press. bar : 2.8  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.90  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 11.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 12.65  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

---

control lever  
position degree : VL  
Rated speed rpm : 1365

Rack travel in mm : 10.00  
Tolerance mm : + 2.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

---

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

RATED SPEED

---

control lever  
position degree : 120.0  
tolerance degree : + 6.0

rack travel mm : 11.60  
Rated speed rpm : 1215  
Tolerance 1/min : + 15

rack travel mm : 4.00  
Rated speed rpm : 1350  
Tolerance 1/min : + 5

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1450

---

LOW IDLE

---

control lever  
position degree : 76.0  
tolerance degree : + 6.0

Testing:

Rated speed rpm : 325  
rack travel mm : 6.40  
Tolerance mm : + 0.10

Rated speed rpm : 275  
CRT mm min. : > 7.00

---

CONTINUOUS-ACTION CONTROL

---

Rated speed rpm : 400

---

TORQUE CONTROL

---

Rated speed rpm : 1150  
rack travel mm : 12.65  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 12.05  
Tolerance mm : + 0.10

Rated speed rpm : 600  
rack travel mm : 11.70  
Tolerance mm : + 0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

---

SETTING

Rated speed rpm : 1150  
Pressure hPa : 1200  
rack travel mm : 12.65  
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 1150  
Pressure hPa : 650  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.20  
  
Pressure hPa : 300  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 280  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.60  
Rated speed rpm : 1215  
Tolerance 1/min :  $\pm$  15

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  30.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.03.95  
Test oil : ISO 4113  
  
Combination No. : 0402736844  
  
Injection pump  
Pump designation : PES6P120A120RS7287  
EP type number : 0412726896

Governor  
Governor design. : RQV400...1250PA964  
                  : -21K  
Governor no. : 0421815354

Cust. part No. : 3921925

---

Customer-spec. information  
Customer : CDC  
Motor : 6BTA-A  
Power kW : 171.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413086

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

---

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 12.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

---

## BEGINNING OF DELIVERY DIFFERENCE

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

---

## BASIC SETTING

Rated speed rpm : 1150

---

Rack travel in mm : 14.85  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.5



---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : MAX  
Rated speed rpm : 1475

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

RATED SPEED

control lever  
position degree : 120.0  
tolerance degree : + 6.0

rack travel mm : 13.40  
Rated speed rpm : 1315  
Tolerance 1/min : + 15

rack travel mm : 4.00  
Rated speed rpm : 1485  
Tolerance 1/min : + 5

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1550

---

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 6.0

Testing:

Rated speed rpm : 420  
rack travel mm : 5.90  
Tolerance mm : + 0.20

Rated speed rpm : 300  
CRT mm min. : > 9.00

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 425

---

TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.85  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 14.00  
Tolerance mm : + 0.20

Rated speed rpm : 1250  
rack travel mm : 14.50  
Tolerance mm : + 0.10

Rated speed rpm : 900  
rack travel mm : 14.20  
Tolerance mm : + 0.20

Rated speed rpm : 600  
rack travel mm : 13.40  
Tolerance mm : + 0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1150  
Pressure hPa : 1200  
rack travel mm : 14.85  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1150

Pressure hPa : 645  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.30

Pressure hPa : 355  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.20

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  315  
Check  
speed 1/min :  $<$  325

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 182.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 13.40  
Rated speed rpm : 1315  
Tolerance 1/min :  $\pm$  15

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.03.95  
Test oil : ISO 4113

Combination No. : 0402736846

Injection pump  
Pump designation : PES6P120A120RS7287  
EP type number : 0412726896

Governor  
Governor design. : RQV400...1250PA1081K  
Governor no. : 0421815360

Cust. part No. : 3924903

## Customer-spec. information

Customer : CDC  
Motor : 6BTA-A  
Power KW : 156.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413086

Inlet press. bar : 2.0

Test nozzle holder  
assembly : 1688901103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 12.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
S.o.d. blocking  
Barrel no. : 1

°NW after s.o.d. : 6.0  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.95  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1410

Rack travel in mm : 13.00  
Tolerance mm :  $\pm$  2.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### RATED SPEED

control lever  
position degree : 120.0

K19

tolerance degree :  $\pm$  6.0

rack travel mm : 12.90  
Rated speed rpm : 1320  
Tolerance 1/min :  $\pm$  15

rack travel mm : 4.00  
Rated speed rpm : 1475  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1550

---

##### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  6.0

##### Testing:

Rated speed rpm : 420  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 300  
CRT mm min. : > 8.90

---

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 420

---

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.20

---

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1250

Pressure hPa : 1200  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250

Pressure hPa : 585  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.30

Pressure hPa : 305  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.20

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  315  
Check  
speed 1/min :  $<$  325

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 12.90  
Rated speed rpm : 1320  
Tolerance 1/min :  $\pm$  15

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.03.95  
Test oil : ISO 4113

Combination No. : 0402736848

Injection pump  
Pump designation : PES6P120A120RS7314  
EP type number : 0412726901

Governor  
Governor design. : RQV400...1250PA964  
: -23K  
Governor no. : 0421815374

Cust. part No. : 3921922

Customer-spec. information  
Customer : CDC  
Motor : 6BTA-A  
Power KW : 142.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413086

Inlet press. bar : 2.0

Test nozzle holde  
assembly : 1688901103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 12.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

RATED SPEED

control lever  
position degree : 118.0  
tolerance degree : ± 6.0

rack travel mm : 13.00  
Rated speed rpm : 1310  
Tolerance 1/min : ± 15

rack travel mm : 4.00  
Rated speed rpm : 1475  
Tolerance 1/min : ± 5

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1550

LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 420  
rack travel mm : 5.80  
Tolerance mm : ± 0.20

Rated speed rpm : 300

CRT mm min. : > 8.90

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 420

TORQUE CONTROL

Rated speed rpm : 150  
rack travel mm : 14.35  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 12.90  
Tolerance mm : ± 0.20

Rated speed rpm : 1250  
rack travel mm : 14.10  
Tolerance mm : ± 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1150  
Pressure hPa : 1200  
rack travel mm : 14.35  
Tolerance mm : ± 0.05

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 500  
rack travel mm : 13.30  
Tolerance mm : ± 0.30

Pressure hPa : 375

rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.20

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 315  
Check  
speed 1/min : < 325

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 112.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 1310  
Tolerance 1/min :  $\pm$  15

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.03.95  
Test oil : ISO 4113

Combination No. : 0402736866

Injection pump  
Pump designation : PES6P120A120RS7349  
EP type number : 0412726920

Governor  
Governor design. : RQV400...1250PA1171K  
Governor no. : 0421815437

Cust. part No. : 3928149

## Customer-spec. information

Customer : CDC  
Motor : 6BTA-A  
Power KW : 156.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413086

Inlet press. bar : 2.0

Test nozzle holde  
assembly : 1688901103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750015

Outside diameter : 6.0

x inside diameter : 3.0

K24

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 12.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
S.o.d. blocking  
Barrel no. : 1

°NW after s.o.d. : 6.0  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.95  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1410

Rack travel in mm : 13.00  
Tolerance mm : + 2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### RATED SPEED

control lever  
position degree : 120.0

K25

tolerance degree : + 6.0

rack travel mm : 12.90  
Rated speed rpm : 1320  
Tolerance 1/min : + 15

rack travel mm : 4.00  
Rated speed rpm : 1475  
Tolerance 1/min : + 5

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1550

##### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : + 6.0

##### Testing:

Rated speed rpm : 420  
rack travel mm : 5.60  
Tolerance mm : + 0.20

Rated speed rpm : 300

CRT mm min. : > 8.90

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 420

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 13.95  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 12.00  
Tolerance mm : + 0.10

Rated speed rpm : 500  
rack travel mm : 10.90  
Tolerance mm : + 0.20

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1250

Pressure hPa : 1200  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250

Pressure hPa : 585  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.30

Pressure hPa : 305  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.20

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  315  
Check  
speed 1/min :  $<$  325

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 12.90  
Rated speed rpm : 1320  
Tolerance 1/min :  $\pm$  15

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.03.95  
Test oil : ISO 4113  
Combination No. : 0402736867  
Injection pump  
Pump designation : PES6P120A120RS7350  
EP type number : 0412726921  
Governor  
Governor design. : RQV400...1150PA1172K  
Governor no. : 0421815438  
Cust. part No. : 3928147

## Customer-spec. information

Customer : CDC  
Motor : 6BTA-A  
Power KW : 142.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 2417413086

Inlet press. bar : 2.0

Test nozzle holde  
assembly : 1688901103

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1680750015

Outside diameter : 6.0

x inside diameter : 3.0

K27

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : + 1.0

Prestroke mm : 3.60  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 12.50  
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
Tolerance : + 0.10  
Check  
tolerance °NW : + 0.23

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.35  
Tolerance mm : + 0.05

Del. quantity  
cm3/1000 strokes : 167.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

RATED SPEED

control lever  
position degree : 118.0  
tolerance degree : + 6.0

rack travel mm : 13.00  
Rated speed rpm : 1310  
Tolerance 1/min : + 15

rack travel mm : 4.00  
Rated speed rpm : 1475  
Tolerance 1/min : + 5

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1550

LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : + 6.0

Testing:

Rated speed rpm : 420  
rack travel mm : 6.50  
Tolerance mm : + 0.20

Rated speed rpm : 300

CRT mm min. : > 8.90

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 420

TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.35  
Tolerance mm : + 0.05

Rated speed rpm : 1150  
rack travel mm : 12.90  
Tolerance mm : + 0.20

Rated speed rpm : 1250  
rack travel mm : 14.20  
Tolerance mm : + 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1150  
Pressure hPa : 1200  
rack travel mm : 14.35  
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 500  
rack travel mm : 13.40  
Tolerance mm : + 0.30

Pressure hPa : 375  
rack travel mm : 12.30  
Tolerance mm : + 0.20

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 315  
Check  
speed 1/min : < 325

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 1310  
Tolerance 1/min : ± 15

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.00  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 25.0

L01

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.04.95  
Test oil : ISO 4113  
Combination No. : 0400846592  
Injection pump  
Pump designation : PES6A95D410RS2797  
EP type number : 0410896900  
Governor  
Governor design. : RQV300...1200AB1065  
: -24L  
Governor no. : 0420212228  
Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 366  
Power KW : 92.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0681343009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1680750015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 9.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

2nd speed rpm : 300

Rack travel in mm : 8.80

Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1450

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### RATED SPEED

L03

control lever  
position degree : 108.0  
tolerance degree : ± 4.0

rack travel mm : 8.90  
Rated speed rpm : 1245  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1375  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1550

##### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 500  
rack travel mm : 8.80  
Tolerance mm : ± 0.20

Rated speed rpm : 100

CRT mm min. : > 9.60

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 575

##### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 9.95  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 10.80  
Tolerance mm : ± 0.10

Rated speed rpm : 840  
rack travel mm : 10.35  
Tolerance mm : ± 0.15

##### START CUT-OUT

Rated speed rpm : > 100



Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 8.90  
Rated speed rpm : 1245  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.80  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 7.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 10.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 8.80  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.04.95  
Test oil : ISO 4113  
Combination No. : 0400874240  
Injection pump  
Pump designation : PES4A90D410RS2666  
EP type number : 0410894029  
Governor  
Governor design. : RSV350...1400AOC2006  
: -1L  
Governor no. : 0420232449  
Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364  
Power KW : 66.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1419992198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0681343009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1680750015  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.30  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1380  
Rack travel in mm : 10.45  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

2nd speed rpm : 350

Rack travel in mm : 7.90  
Tolerance mm : ± 0.10

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1380  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

RATED SPEED

control lever  
position degree : 109.0  
tolerance degree : ± 4.0

rack travel mm : 9.40  
Rated speed rpm : 1435  
Tolerance 1/min : ± 5

rack travel mm : 4.00

L06

Rated speed rpm : 1495  
Tolerance 1/min : ± 15

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1575

---

LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 7.90  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 475  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 1.50

---

TORQUE CONTROL

Rated speed rpm : 1380  
rack travel mm : 10.45  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 11.75  
Tolerance mm : ± 0.05

Rated speed rpm : 900  
rack travel mm : 11.20  
Tolerance mm : ± 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

## BREAKAWAY

Rack travel in mm : 9.40  
Rated speed rpm : 1435  
Tolerance 1/min :  $\pm$  5

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 16.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

## LOW IDLE

Rated speed rpm : 350  
rack travel mm : 7.90  
Tolerance mm :  $\pm$  0.10

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.04.95  
Test oil : ISO 4113  
Combination No. : 0400876331  
Injection pump  
Pump designation : PES6A90D410RS2710  
EP type number : 0410896082  
Governor  
Governor design. : RSV350...1400A0C2006  
: -2L  
Governor no. : 0420232453  
Cust. part No. :

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM 366  
Power KW : 100.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413000

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0681343009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test Lines : 1680750015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.30  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1380

Rack travel in mm : 10.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 65.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000s. : ± 2.5

Speed

Tolerance	
cm3/1000 strokes :	3.0
<hr/>	
Check tolerance	
cm3/1000S. :	7.0
2nd speed rpm :	350
Rack travel in mm :	8.10
Tolerance mm :	+ 0.10
Del. quantity	
cm3/1000 strokes :	8.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.0
Spread	
Tolerance	
cm3/1000 strokes :	2.5
Check tolerance	
cm3/1000S. :	7.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree :	- 3
Rated speed rpm :	800
Rack travel in mm :	0.65
Tolerance mm :	+ 0.35
governor spring	
pre-tension	
click setting x :	4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1380
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	65.5
Tolerance	
cm3/1000 strokes :	+ 0.5
Check tolerance	
cm3/1000S. :	+ 2.5
Spread	
Tolerance	
cm3/1000 strokes :	3.0
Check tolerance	
cm3/1000S. :	7.0

RATED SPEED

control lever	
position degree :	111.0
tolerance degree :	+ 4.0
rack travel mm :	9.70
Rated speed rpm :	1435
Tolerance 1/min :	+ 5
rack travel mm :	4.00
Rated speed rpm :	1505
Tolerance 1/min :	+ 15
rack travel mm :	1.00
Tolerance mm :	+ 0.70
Rated speed rpm :	1650

LOW IDLE

control lever	
position degree :	78.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	350
rack travel mm :	8.10
Tolerance mm :	+ 0.10
rack travel mm :	2.00
Rated speed rpm :	510
Tolerance 1/min :	+ 30
Rated speed rpm :	100
CRT mm min. :	> 19.50

TORQUE CONTROL

Rated speed rpm :	1380
rack travel mm :	10.75
Tolerance mm :	+ 0.05
Rated speed rpm :	500
rack travel mm :	11.85
Tolerance mm :	+ 0.05
Rated speed rpm :	900
rack travel mm :	11.40
Tolerance mm :	+ 0.10

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

---

## BREAKAWAY

Rack travel in mm : 9.70  
Rated speed rpm : 1435  
Tolerance 1/min : ± 5

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 7.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 10.0

---

## LOW IDLE

Rated speed rpm : 350  
rack travel mm : 8.10  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

## Note remarks

Edition : 09.08.93  
Test oil : ISO 4113

Injection pump  
Pump designation : PES6A90D410RS2710  
EP type number : 0410896082

Governor  
Governor design. : RSV350...1400A0C2006  
: -2L  
Governor no. : 0420232453

Cust. part No. :

Customer : MB-NFZ  
Motor : OM 366  
Power KW : 100.0

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Inlet press. bar : 1.5

Opening pressure : 173.5 bar  
Tolerance bar :  $\pm$  1.5

Outside diameter : 6.0

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

Test pressure bar : 26.0  
Tolerance bar :  $\pm$  1.0

Prestroke mm	:	2.30
Tolerance mm	:	+ 0.05

test only : + 0.10

Rack travel in mm : 10.50  
Tolerance mm :  $\pm 1.50$

Firing order : 1- 5- 3- 6- 2-  
: 4

```

Phasing      : 0-60-120-180-240
              : -300
Tolerance    : +- 0.50
Check
tolerance °NW : +- 0.75

```

Rated speed rpm : 1200

Rack travel in mm : 10.35  
Tolerance mm :  $\pm 0.05$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm3/1000S. :  $\pm 2.5$

**Spread**



Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

2nd speed rpm : 350

Rack travel in mm : 8.50

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 4.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

##### RATED SPEED

control lever  
position degree : 105.0  
tolerance degree : ± 4.0

rack travel mm : 9.30  
Rated speed rpm : 1245  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1310  
Tolerance 1/min : ± 15

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1360

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 8.50

##### Testing:

rack travel mm : 2.00  
Rated speed rpm : 510  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.50

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 100

##### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 10.35  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 12.00  
Tolerance mm : ± 0.05

Rated speed rpm : 700

rack travel mm : 12.00  
Tolerance mm : + 0.10  
  
Rated speed rpm : 1000  
rack travel mm : 11.10  
Tolerance mm : + 0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 58.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

#### BREAKAWAY

Rack travel in mm : 9.30  
Rated speed rpm : 1245  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 8.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 8.50  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

Note remarks

Edition : 05.04.95  
Test oil : ISO 4113

Injection pump  
Pump designation : PES6A95D41ORS2835  
EP type number : 0410896896

Cust. part No. :

Customer : FNH-GEOTECH  
Motor : 7.5 L-8740 Trak  
Power KW : 142.0

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Inlet press. bar : 1.5

Opening pressure  
bar : 208.5  
Tolerance bar :  $\pm$  1.5

Outside diameter : 6.0

REMARKS

Test hydr. locking device for starting  
with 800...1200 hPa air pressure.

Set equal delivery quant.  
per values

Test pressure bar : 26.0  
Tolerance bar :  $\pm$  1.0

test only : + 0.10

Rack travel in mm : 10.50  
Tolerance mm :  $\pm 1.50$

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

```
Tolerance      : +- 0.50
Check
tolerance °NW  : +- 0.75
```

Rated speed rpm : 1050

Rack travel in mm : 13.45  
Tolerance mm :  $\pm 0.05$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0

---

Tolerance  
cm3/1000 strokes : + 2.0

---

Check tolerance  
cm3/1000S. : + 4.5

---

Spreed  
Tolerance  
cm3/1000 strokes : 3.5

---

Check tolerance  
cm3/1000S. : 6.0

2nd speed rpm : 450

Rack travel in mm : 5.10  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 14.0

Tolerance  
cm3/1000 strokes : + 2.0

Check tolerance  
cm3/1000S. : + 4.5

Spreed  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 3.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm3/1000 strokes : 132.0  
Tolerance  
cm3/1000 strokes : + 2.0

Check tolerance  
cm3/1000S. : + 4.5

Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 6.0

---

##### RATED SPEED

control lever  
position degree : 96.0  
tolerance degree : + 4.0

rack travel mm : 12.40

rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

---

##### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 450  
rack travel mm : 5.10  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 620  
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.50

---

##### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.45  
Tolerance mm : + 0.05

Rated speed rpm : 650  
rack travel mm : 15.10  
Tolerance mm : + 0.10

Rated speed rpm : 900  
rack travel mm : 14.20  
Tolerance mm : + 0.20

Rated speed rpm : 1050  
rack travel mm : 12.95  
Tolerance mm :  $\pm$  0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 15.10  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 650  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 900  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

BREAKAWAY

Rack travel in mm : 12.40

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

LOW IDLE

Rated speed rpm : 450  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.04.95  
Test oil : ISO 4113  
  
Combination No. : 0402046824  
  
Injection pump  
Pump designation : PES6P120A320RS3279  
: -1  
EP type number : 0412026758  
  
Governor  
Governor design. : RQ275/1050PA999-5  
Governor no. : 0421801663  
  
Cust. part No. : CCEP-5112B 66-175

Customer-spec. information  
Customer : RVI  
Motor : MIHR 062045 A/3  
Power KW : 186.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

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x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav.  
mm : 10.50  
Tolerance mm : ± 0.50

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.25

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 275

Rack travel in mm : -4.90  
Tolerance mm :  $\pm$  0.20

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1126  
guide sleeve  
travel mm : 6.38  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 582  
guide sleeve  
travel mm : 5.14  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 710  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1380  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 750

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 274.0  
tolerance degree :  $\pm$  4.0

rack travel mm : -1.00  
Rated speed rpm : 1138  
Tolerance 1/min :  $\pm$  8

rack travel mm : -7.20  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  15

rack travel mm : -10.75  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 253.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 275  
rack travel mm : -4.90  
Tolerance mm :  $\pm$  0.10

rack travel mm : -8.90  
Rated speed rpm : 520  
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm max. : < -3.40

---

#### TORQUE CONTROL

Rated speed rpm : 700

Rated speed rpm : 1050  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -1.20  
Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 220  
rack travel mm : -0.45  
Tolerance mm : + 0.15

Pressure hPa : 160  
rack travel mm : -0.85  
Tolerance mm : + 0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 195  
Check  
speed 1/min : < 215

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050

Del. quantity  
cm3/1000 strokes : 156.0  
Tolerance  
cm3/1000 strokes : + 3.0  
Check tolerance  
cm3/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 114.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1138  
Tolerance 1/min : + 8

---

#### STARTING FUEL DELIVERY

Del. quantity  
cm3/1000 strokes : 155.0  
Tolerance  
cm3/1000 strokes : + 10.0  
Check tolerance  
cm3/1000S. : + 14.0

---

#### LOW IDLE

Rated speed rpm : 275  
rack travel mm : -4.90  
Tolerance mm : + 0.20



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.04.95  
Test oil : ISO 4113  
Combination No. : 0402646653  
Injection pump  
Pump designation : PE6P120A320RS7360  
EP type number : 0412626936

Governor  
Governor design. : RQ275/1150PA1193  
Governor no. : 0421801752

Cust. part No. : 1294723/2

Customer-spec. information  
Customer : DAF  
Motor : GS 200 M  
Power KW : 200.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 11.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
°NW after s.o.d. : 0.3  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.70  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 275

Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.94  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1205  
guide sleeve  
travel mm : 6.49  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1150  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 353

guide sleeve  
travel mm : 4.33  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 440  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1360  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 550

Rack travel in mm : 15.80  
Tolerance mm :  $\pm$  0.60

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 100.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 10.70  
Rated speed rpm : 1202  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1280  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.70

Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 175

CRT mm min. :  $>$  7.00

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600

Pressure hPa : 390  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.05

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Pressure hPa : 210  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.70  
Rated speed rpm : 1202  
Tolerance 1/min :  $\pm$  8

---

#### LOW IDLE

Rated speed rpm : 275  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.04.95  
Test oil : ISO 4113  
  
Combination No. : 0402646654  
  
Injection pump  
Pump designation : PE6P120A32ORS7360Z  
EP type number : 0412626937

Governor  
Governor design. : RQ275/1150PA1193  
Governor no. : 0421801752

Cust. part No. : 1285911/3

Customer-spec. information  
Customer : DAF  
Motor : GS 160 M  
Power KW : 160.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 1.40  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.50  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spread  
Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

2nd speed rpm : 275

Rack travel in mm : 4.90  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 15.0

Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0

Spread  
Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.92  
Tolerance mm : + 0.10

Rated speed rpm : 1206  
guide sleeve  
travel mm : 6.49  
Tolerance mm : + 0.10

Rated speed rpm : 1150  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 351  
guide sleeve  
travel mm : 4.25  
Tolerance mm : + 0.10

Rated speed rpm : 440  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1360  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.10

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 550

Rack travel in mm : 15.80  
Tolerance mm : + 0.60

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm3/1000 strokes : 152.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spread  
Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 97.0  
tolerance degree : + 4.0

rack travel mm : 9.50  
Rated speed rpm : 1202  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1265  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1450

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.90  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min : ± 20

Rated speed rpm : 175

CRT mm min. : > 7.00

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 10.50  
Tolerance mm : ± 0.05

Rated speed rpm : 1150  
rack travel mm : 10.50  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 10.50  
Tolerance mm : ± 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 9.70  
Tolerance mm : ± 0.10

Rated speed rpm : 600

Pressure hPa : 290  
rack travel mm : 10.15  
Tolerance mm : ± 0.05

Pressure hPa : 260  
rack travel mm : 9.90  
Tolerance mm : ± 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 9.50  
Rated speed rpm : 1202  
Tolerance 1/min : ± 8

---

#### LOW IDLE

Rated speed rpm : 275  
rack travel mm : 4.90  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.04.95  
Test oil : ISO 4113

Combination No. : 0403244037

Injection pump  
Pump designation : PES4MW100/720RS1519  
: -2  
EP type number : 0413204017

Governor  
Governor design. : RQV300...1300MW132  
: -6  
Governor no. : 0420083309

Cust. part No. : 0240744002

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364LA  
Power KW : 103.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.90  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
 cm3/1000S. : 8.0  
 2nd speed rpm : 300  
 Rack travel in mm : 3.90  
 Tolerance mm :  $\pm$  0.20  
 Del. quantity  
 cm3/1000 strokes : 12.0  
 Tolerance  
 cm3/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm3/1000S. :  $\pm$  4.5  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.0  
 Check tolerance  
 cm3/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 0.91  
 Tolerance mm :  $\pm$  0.25  
 Rated speed rpm : 1354  
 guide sleeve  
 travel mm : 7.77  
 Tolerance mm :  $\pm$  0.25  
 Rated speed rpm : 1140  
 guide sleeve  
 travel mm : 5.88  
 Tolerance mm :  $\pm$  0.25  
 Rated speed rpm : 629  
 guide sleeve  
 travel mm : 3.15  
 Tolerance mm :  $\pm$  0.25  
 Rated speed rpm : 679  
 guide sleeve  
 travel mm : 3.53  
 Tolerance mm :  $\pm$  0.25  
 Rated speed rpm : 800  
 guide sleeve  
 travel mm : 4.00  
 Tolerance mm :  $\pm$  0.25  
 Rated speed rpm : 1596  
 guide sleeve  
 travel mm : 12.00  
 Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1690  
 guide sleeve  
 travel mm : 13.50  
 Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1450  
 Rack travel in mm : 10.00  
 Tolerance mm :  $\pm$  2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 1200  
 Del. quantity  
 cm3/1000 strokes : 126.0  
 Tolerance  
 cm3/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm3/1000S. :  $\pm$  4.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 5.0  
 Check tolerance  
 cm3/1000S. : 8.0

##### RATED SPEED

control lever  
 position degree : 116.0  
 tolerance degree :  $\pm$  4.0  
 rack travel mm : 12.90  
 Rated speed rpm : 1345  
 Tolerance 1/min :  $\pm$  5  
 rack travel mm : 4.00  
 Rated speed rpm : 1465  
 Tolerance 1/min :  $\pm$  15  
 rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 1550

##### LOW IDLE

control lever  
 position degree : 71.0  
 tolerance degree :  $\pm$  4.0



### Testing:

Rated speed rpm : 300  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm min. :  $>$  4.50

### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 600  
rack travel mm : 2.00  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 350  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.10

### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  200

Check  
speed 1/min :  $<$  220

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 67.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.0

### BREAKAWAY

Rack travel in mm : 12.90  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  8.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.95  
Test oil : ISO 4113

Combination No. : 0403244044

Injection pump  
Pump designation : PES4MW100/320RS1521  
EP type number : 0413204020

Governor  
Governor design. : RQV400...1200MW147  
Governor no. : 0420083320

Cust. part No. : 51.11103-7412

## Customer-spec. information

Customer : SNF  
Motor : D0824 LFL04  
Power KW : 81.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 8.0

x inside diameter : 2.0

M02

x length mm : 600

## REMARKS

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm  
control-rod travel at 4.5 bar atmospheric pressure.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
S.o.d. blocking  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 12.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

2nd speed rpm : 400

Rack travel in mm : 4.90  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 400  
guide sleeve  
travel mm : 1.55  
Tolerance mm : ± 0.25

Rated speed rpm : 1253  
guide sleeve  
travel mm : 9.86  
Tolerance mm : ± 0.25

Rated speed rpm : 848  
guide sleeve  
travel mm : 5.69  
Tolerance mm : ± 0.25

Rated speed rpm : 448  
guide sleeve  
travel mm : 2.05  
Tolerance mm : ± 0.25

Rated speed rpm : 498

guide sleeve  
travel mm : 2.59  
Tolerance mm : ± 0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.30  
Tolerance mm : ± 0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1350

Rack travel in mm : 10.00  
Tolerance mm : ± 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### RATED SPEED

control lever  
position degree : 125.0  
tolerance degree : ± 4.0

rack travel mm : 11.30  
Rated speed rpm : 1253  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1325  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1450

---

## LOW IDLE

control lever  
position degree : 79.0  
tolerance degree :  $\pm$  4.0

### Testing:

Rated speed rpm : 400  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

CRT mm min. :  $>$  7.00

---

## TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 500  
Pressure hPa : 800  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.05

### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 400  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 130

MO4

rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.10

---

## START CUT-OUT

Rated speed rpm :  $>$  200  
Check  
speed 1/min :  $>$  180  
Rated speed rpm :  $<$  300  
Check  
speed 1/min :  $<$  320

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 800  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 800  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

## BREAKAWAY

Rack travel in mm : 11.30  
Rated speed rpm : 1253  
Tolerance 1/min :  $\pm$  5

---

# STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

# LOW IDLE

Rated speed rpm : 400  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.04.95  
Test oil : ISO 4113  
Combination No. : 0403244046  
Injection pump  
Pump designation : PES4MW100/720RS1525  
EP type number : 0413204022  
Governor  
Governor design. : RQV300...1300MW132  
: -13  
Governor no. : 0420083330  
Cust. part No. : 0260746202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364LA  
Power KW : 103.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1419992198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1688901101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1680750089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.90  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0  
 2nd speed rpm : 300  
 Rack travel in mm : 3.90  
 Tolerance mm : + 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 0.91  
 Tolerance mm : + 0.25

Rated speed rpm : 1354  
 guide sleeve  
 travel mm : 7.15  
 Tolerance mm : + 0.25

Rated speed rpm : 1130  
 guide sleeve  
 travel mm : 5.40  
 Tolerance mm : + 0.25

Rated speed rpm : 610  
 guide sleeve  
 travel mm : 2.96  
 Tolerance mm : + 0.25

Rated speed rpm : 660  
 guide sleeve  
 travel mm : 3.31  
 Tolerance mm : + 0.25

Rated speed rpm : 780  
 guide sleeve  
 travel mm : 3.72  
 Tolerance mm : + 0.25

Rated speed rpm : 1679  
 guide sleeve  
 travel mm : 12.00  
 Tolerance mm : + 0.25

Rated speed rpm : 1780  
 guide sleeve  
 travel mm : 13.50  
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1390  
 Rack travel in mm : 10.00  
 Tolerance mm : + 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 1400  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 126.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

RATED SPEED

control lever  
 position degree : 113.0  
 tolerance degree : + 4.0

rack travel mm : 12.90  
 Rated speed rpm : 1345  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1465  
 Tolerance 1/min : + 15

rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1550

LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree : + 4.0



## Testing:

Rated speed rpm : 300  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm min. :  $>$  4.50

## TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 500  
Pressure hPa : 1400  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.05

### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 600  
rack travel mm : 2.00  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 350  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.10

### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  200

Check  
speed 1/min :  $<$  220

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1400  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1400  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 67.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

### BREAKAWAY

Rack travel in mm : 12.90  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 4.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.04.95  
Test oil : ISO 4113  
Combination No. : 0403244047  
Injection pump  
Pump designation : PES4MW100/72ORS1525  
EP type number : 0413204022  
Governor  
Governor design. : RQV300...1300MW132  
-13  
Governor no. : 0420083330  
Cust. part No. : 0260746302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364LA  
Power KW : 103.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1419992198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1688901101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1680750089  
Outside diameter : 8.0

M10

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 21.00  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 13.90  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
 cm3/1000S. : 8.0  
 2nd speed rpm : 300  
 Rack travel in mm : 3.90  
 Tolerance mm : + 0.20  
 Del. quantity  
 cm3/1000 strokes : 12.0  
 Tolerance  
 cm3/1000 strokes : + 2.0  
 Check tolerance  
 cm3/1000S. : + 4.5  
 Spread  
 Tolerance  
 cm3/1000 strokes : 2.0  
 Check tolerance  
 cm3/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 0.91  
 Tolerance mm : + 0.25  
 Rated speed rpm : 1354  
 guide sleeve  
 travel mm : 7.15  
 Tolerance mm : + 0.25  
 Rated speed rpm : 1130  
 guide sleeve  
 travel mm : 5.40  
 Tolerance mm : + 0.25  
 Rated speed rpm : 610  
 guide sleeve  
 travel mm : 2.96  
 Tolerance mm : + 0.25  
 Rated speed rpm : 660  
 guide sleeve  
 travel mm : 3.31  
 Tolerance mm : + 0.25  
 Rated speed rpm : 780  
 guide sleeve  
 travel mm : 3.72  
 Tolerance mm : + 0.25  
 Rated speed rpm : 1679  
 guide sleeve  
 travel mm : 12.00  
 Tolerance mm : + 0.25

Rated speed rpm : 1780  
 guide sleeve  
 travel mm : 13.50  
 Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1390  
 Rack travel in mm : 10.00  
 Tolerance mm : + 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 1200  
 Del. quantity  
 cm3/1000 strokes : 126.0  
 Tolerance  
 cm3/1000 strokes : + 1.0  
 Check tolerance  
 cm3/1000S. : + 4.0  
 Spread  
 Tolerance  
 cm3/1000 strokes : 5.0  
 Check tolerance  
 cm3/1000S. : 8.0

##### RATED SPEED

control lever  
 position degree : 113.0  
 tolerance degree : + 4.0  
 rack travel mm : 12.90  
 Rated speed rpm : 1345  
 Tolerance 1/min : + 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1465  
 Tolerance 1/min : + 15  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1550

##### LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree : + 4.0

### Testing:

Rated speed rpm : 300  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm min. :  $>$  4.50

### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 600  
rack travel mm : 2.00  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 350  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.10

### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  200

Check  
speed 1/min :  $<$  220

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 67.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

### BREAKAWAY

Rack travel in mm : 12.90  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

# LOW IDLE

Rated speed rpm	:	300
rack travel mm	:	3.90
Tolerance mm	:	+ 0.20
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	12.0
Tolerance		
cm <sup>3</sup> /1000 strokes	:	+ 2.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	+ 4.5
Speed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	2.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	4.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.11.92  
Test oil : ISO 4113  
Combination No. : 0403444142  
Injection pump  
Pump designation : PES4MW100/720RS1212  
EP type number : 0413404114

Governor  
Governor design. : RQV300...1300MW50  
-15  
Governor no. : 0420083238

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364LA  
Power KW : 102.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0681343009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test Lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 102.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm3/1000S. : 6.0

Rack travel in mm : 6.50  
Tolerance mm : +- 0.20  
Del. quantity  
cm3/1000 strokes : 12.0  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 4.5  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.40  
Tolerance mm : +- 0.25

Rated speed rpm : 1355  
guide sleeve  
travel mm : 8.65  
Tolerance mm : +- 0.25

Rated speed rpm : 885  
guide sleeve  
travel mm : 5.01  
Tolerance mm : +- 0.25

Rated speed rpm : 355  
guide sleeve  
travel mm : 1.96  
Tolerance mm : +- 0.25

Rated speed rpm : 405  
guide sleeve  
travel mm : 2.33  
Tolerance mm : +- 0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 2.92  
Tolerance mm : +- 0.25

Rated speed rpm : 1610  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1340

Rack travel in mm : 16.50  
Tolerance mm : +- 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 700  
Del. quantity  
cm3/1000 strokes : 102.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 6.0

---

RATED SPEED

control lever  
position degree : 111.0  
tolerance degree : +- 4.0

rack travel mm : 12.20  
Rated speed rpm : 1345  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1460  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1550

---

LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : +- 4.0

Testing:



Rated speed rpm : 300  
rack travel mm : 6.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm min. :  $>$  8.00

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 435

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 400  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 200  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  200

Check  
speed 1/min :  $<$  230

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 37.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 12.20  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

rack travel mm : 6.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm3/1000 strokes : + 2.0  
Check tolerance  
cm3/1000S. : + 4.5  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 5.5



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.04.95  
Test oil : ISO 4113

Combination No. : 0403474008

Injection pump  
Pump designation : PES4MW100/72ORS1181  
EP type number : 0413404107

Governor  
Governor design. : RSV400...1000MW1A333  
Governor no. : 0420085118

Cust. part No. :

Customer-spec. information  
Customer : LIEBHERR  
Motor : 914 TI  
Power KW : 120.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413049

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0681343009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0

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x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 12.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed	
Tolerance	
cm3/1000 strokes :	4.0
Check tolerance	
cm3/1000S. :	7.5
2nd speed rpm :	400
Rack travel in mm :	6.20
Tolerance mm :	+ 0.20
Del. quantity	
cm3/1000 strokes :	22.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.5
Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever	
position degree :	- 3
Rated speed rpm :	800
Rack travel in mm :	0.65
Tolerance mm :	+ 0.35
governor spring	
pre-tension	
click setting x :	3.80

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	980
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	152.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 4.0
Spreed	
Tolerance	
cm3/1000 strokes :	4.0

Check tolerance	
cm3/1000S. :	7.5

#### RATED SPEED

control lever	
position degree :	100.0
tolerance degree :	+ 4.0
rack travel mm :	11.10
Rated speed rpm :	1025
Tolerance 1/min :	+ 5
rack travel mm :	4.00
Rated speed rpm :	1065
Tolerance 1/min :	+ 15
rack travel mm :	1.00
Tolerance mm :	+ 0.70
Rated speed rpm :	1175

#### LOW IDLE

control lever	
position degree :	74.0
tolerance degree :	+ 4.0

#### Setting point w/out bumper spring

Rated speed rpm :	400
rack travel mm :	6.20

#### Testing:

Rated speed rpm :	400
rack travel mm :	5.70
Tolerance mm :	+ 0.10

rack travel mm :	2.00
Rated speed rpm :	510
Tolerance 1/min :	+ 30

Rated speed rpm :	100
-------------------	-----

CRT mm min. :	> 19.00
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#### TORQUE CONTROL

Rated speed rpm :	980
rack travel mm :	12.15
Tolerance mm :	+ 0.05

Rated speed rpm :	600
rack travel mm :	12.15
Tolerance mm :	+ 0.05

Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

#### BREAKAWAY

Rack travel in mm : 11.10  
Rated speed rpm : 1025  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : ± 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 400  
rack travel mm : 6.20  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.07.93  
Test oil : ISO 4113

Combination No. : 0403474021

Injection pump  
Pump designation : PES4MW100/720RS1181  
EP type number : 0413404107

Governor  
Governor design. : RSV400...1000MW1A348  
Governor no. : 0420085183

Cust. part No. :

Customer-spec. information  
Customer : LIEBHERR  
Motor : D914TI  
Power KW : 125.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413049

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0681343009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0

M21

x length mm : 600

## REMARKS

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : + 0.35

governor spring  
pre-tension  
click setting x : 5.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

##### RATED SPEED

control lever  
position degree : 96.0  
tolerance degree : + 4.0

rack travel mm : 10.90

Rated speed rpm : 930  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 988  
Tolerance 1/min : + 8

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1100

rack travel mm : 4.00  
Rated speed rpm : 1005

---

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 6.25

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.25  
Tolerance mm : + 0.25

rack travel mm : 2.00  
Rated speed rpm : 480  
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 11.95  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 11.95  
Tolerance mm : + 0.05

Rated speed rpm : 700  
rack travel mm : 11.95  
Tolerance mm : + 0.05

Rated speed rpm : 400  
rack travel mm : 13.35  
Tolerance mm : + 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 550  
Pressure hPa : 1100  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 550  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550

Pressure hPa : 530  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 670  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 10.90  
Rated speed rpm : 930  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.07.93  
Test oil : ISO 4113

Combination No. : 0403474021B

Injection pump  
Pump designation : PES4MW100/720RS1181  
EP type number : 0413404107

Governor  
Governor design. : RSV400...1000MW1A348  
Governor no. : 0420085183

Cust. part No. :

Customer-spec. information  
Customer : LIEBHERR  
Motor : D914TI  
Power KW : 125.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413049

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0681343009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0

M24

x length mm : 600

## REMARKS

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : +- 0.35

governor spring  
pre-tension  
click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### RATED SPEED

control lever  
position degree : 96.0  
tolerance degree : +- 4.0  
rack travel mm : 10.90

M25

Rated speed rpm : 930  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 988  
Tolerance 1/min : +- 8

rack travel mm : 1.00  
Tolerance mm : +- 0.70  
Rated speed rpm : 1100

rack travel mm : 4.00  
Rated speed rpm : 1005

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 6.25

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.25  
Tolerance mm : +- 0.25

rack travel mm : 2.00  
Rated speed rpm : 480  
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 11.95  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
rack travel mm : 11.95  
Tolerance mm : +- 0.05

Rated speed rpm : 700  
rack travel mm : 11.95  
Tolerance mm : +- 0.05

Rated speed rpm : 400  
rack travel mm : 13.35  
Tolerance mm : +- 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 550  
Pressure hPa : 1100  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 550  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550

Pressure hPa : 530  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 670  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 10.90  
Rated speed rpm : 930  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.04.95  
Test oil : ISO 4113  
  
Combination No. : 0403474021C  
  
Injection pump  
Pump designation : PES4MW100/720RS1181  
EP type number : 0413404107  
  
Governor  
Governor design. : RSV400...1000MW1A348  
Governor no. : 0420085183

Cust. part No. :

---

Customer-spec. information  
Customer : LIEBHERR  
Motor : D914TI  
Power KW : 125.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413049

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0681343009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

---

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.95  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0

---

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spreed  
Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

2nd speed rpm : 500

Rack travel in mm : 6.25  
Tolerance mm : + 0.25

Del. quantity  
cm3/1000 strokes : 22.0

Tolerance  
cm3/1000 strokes : + 2.0

Check tolerance  
cm3/1000S. : + 4.5

Spreed  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 5.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : + 0.35

governor spring  
pre-tension  
click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm3/1000 strokes : 157.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spreed  
Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 7.5

##### RATED SPEED

control lever  
position degree : 96.0  
tolerance degree : + 4.0

rack travel mm : 10.90  
Rated speed rpm : 930  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 988  
Tolerance 1/min : + 8

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1100

rack travel mm : 4.00  
Rated speed rpm : 1005

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 6.25

##### Testing:

Rated speed rpm : 500  
rack travel mm : 5.25  
Tolerance mm : + 0.25

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 11.95  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 400  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 550  
Pressure hPa : 1100  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 550  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550

Pressure hPa : 530  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 670  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

NO1

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.90  
Rated speed rpm : 930  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 500  
rack travel mm : 6.25  
Tolerance mm :  $\pm$  0.25  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000s. : 5.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.02.95  
Test oil : ISO 4113

Combination No. : 0403476137

Injection pump  
Pump designation : PES6MW100/720RS1196  
: -1  
EP type number : 0413406219

Governor  
Governor design. : RSV400...1000MW1A333  
Governor no. : 0420085118

Cust. part No. : 927 7706

Customer spec. information  
Customer : LIEBHERR  
Motor : D 916 T  
Power kW : 132.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413049

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0681343009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.45  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0



Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

2nd speed rpm : 400

Rack travel in mm : 5.60  
Tolerance mm : + 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : + 0.35

governor spring  
pre-tension  
click setting x : 5.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

##### RATED SPEED

control lever  
position degree : 98.0  
tolerance degree : + 4.0

rack travel mm : 10.25  
Rated speed rpm : 945  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 995  
Tolerance 1/min : + 10

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1080

rack travel mm : 4.00  
Rated speed rpm : 1005

---

##### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 4.60

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.60  
Tolerance mm : + 0.20

---

##### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 11.25  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 11.30  
Tolerance mm : + 0.10

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 112.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

#### BREAKAWAY

Rack travel in mm : 10.25  
Rated speed rpm : 945  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm : ± 0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 400  
rack travel mm : 5.60  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

N05

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.03.95  
Test oil : ISO 4113

Combination No. : 0400075921

Injection pump  
Pump designation : PES5M55C320RS189  
EP type number : 0410055953

Governor  
Governor design. : RSF385/2000M81  
Governor no. : 0420021282

Cust. part No. :

## Customer-spec. information

Customer : MB-PKW  
Motor : OM 602 2,9ltr  
Power KW : 70.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1469990351

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

N06

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05

test only : ± 0.15

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 15.5  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance

cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 385

Rack travel in mm : 5.90

Tolerance mm : ± 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 9.5

Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : ± 0.15

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : -

Del. quantity

cm<sup>3</sup>/1000 strokes : 38.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance

cm<sup>3</sup>/1000S. : ± 1.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance

cm<sup>3</sup>/1000S. : 3.0

##### RATED SPEED

control lever

position degree : 50.0

rack travel mm : 7.40

Rated speed rpm : 2250

rack travel mm : 0.50

Tolerance mm : ± 0.60

Rated speed rpm : 2550

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

##### LOW IDLE

control lever

position degree : 14.0

tolerance degree : ± 2.0

Setting point w/out bumper spring

Rated speed rpm : 385

rack travel mm : 5.90

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 500

rack travel mm : 4.00

Tolerance mm : ± 0.10

##### Load pick-up

Rated speed rpm : 250

CRT mm min. : 12.00

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.90

Rated speed rpm : 385

##### TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.00

Tolerance mm : ± 0.05

Rated speed rpm : 2000

rack travel mm : 12.00

Tolerance mm : ± 0.30

##### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
 ALDA / ADA hPa : -  
 Rated speed rpm : 2000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 41.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 2.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0

#### HIGH IDLE

Rated speed rpm : 2250  
 rack travel mm : 7.40  
 Tolerance mm : ± 0.50  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 24.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 21.60  
 Tolerance mm : ± 1.50  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 59.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.5

#### LOW IDLE

Rated speed rpm : 385

rack travel mm : 5.90  
 Tolerance mm : ± 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 9.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 2.3  
 Spreed  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 1.5

#### CHECKING THE IDLE-SPEED AUXILIARY

degree : > 47.00  
 degree : < 44.50

#### SETTING PNEUMATIC FAST IDLE (ELA) (PLA) POSITION

control lever  
 position degree : VWL  
 Rated speed rpm : 400

Rack travel in mm : 8.90  
 Tolerance mm : ± 0.80  
 Vacuum hPa : 400.0  
 Vacuum hPa : 400

#### SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever  
 position degree : 14.0  
 tolerance degree : ± 2.0

control lever  
 position degree : 50.0

Adjustment of the control-rod travel sensor

control lever  
 position degree : 50.0

Note remarks

Edition : 28.03.95  
Test oil : ISO 4113

Injection pump  
Pump designation : PES4A95D410RS2837  
EP type number : 0410894991

Governor  
Governor design. : RQV300...1400AB1065  
: -29L  
Governor no. : 0420212247

```
Customer-spec. information
Customer      : MB-NFZ
Motor        : OM 364
Power KW      : 65.0
```

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Test nozzle holde  
assembly : 0681343009

Opening pressure  
bar : 173.5  
Tolerance bar :  $\pm$  1.5

Outside diameter : 6.0

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

Test pressure bar : 26.0  
Tolerance bar :  $\pm$  1.0

Prestroke mm : 3.25  
Tolerance mm : + 0.05

Rack travel in mm : 10.50  
Tolerance mm : + .50

Firing order : 1- 3- 4- 2

```
Phasing      : 0-90-180-270
Tolerance    : + 0.50
Check
tolerance °NW : + 0.75
```

Rated speed rpm : 1400

Rack travel in mm : 8.85  
Tolerance mm :  $\pm 0.05$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 72.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance cm3/1000S.	:	8.0
2nd speed rpm	:	300
Rack travel in mm	:	5.00
Tolerance mm	:	+ 0.10
Del. quantity cm3/1000 strokes	:	12.0
Tolerance cm3/1000 strokes	:	+ 2.0
Check tolerance cm3/1000S.	:	+ 4.5
Speed Tolerance cm3/1000 strokes	:	5.5
Check tolerance cm3/1000S.	:	9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	300
guide sleeve travel mm	:	1.35
Tolerance mm	:	+ 0.25
Rated speed rpm	:	1453
guide sleeve travel mm	:	8.77
Tolerance mm	:	+ 0.25
Rated speed rpm	:	921
guide sleeve travel mm	:	5.42
Tolerance mm	:	+ 0.25
Rated speed rpm	:	367
guide sleeve travel mm	:	2.41
Tolerance mm	:	+ 0.25
Rated speed rpm	:	417
guide sleeve travel mm	:	3.01
Tolerance mm	:	+ 0.25
Rated speed rpm	:	490
guide sleeve travel mm	:	3.42
Tolerance mm	:	+ 0.25
Rated speed rpm	:	1740
guide sleeve travel mm	:	11.50

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	1450
Rack travel in mm	:	16.50
Tolerance mm	:	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1400
Aneroid pressure hPa	:	-
Del. quantity cm3/1000 strokes	:	72.0
Tolerance cm3/1000 strokes	:	+ 1.0
Check tolerance cm3/1000S.	:	+ 3.0
Speed Tolerance cm3/1000 strokes	:	3.5
Check tolerance cm3/1000S.	:	8.0

RATED SPEED

control lever position degree	:	115.0
tolerance degree	:	+ 4.0
rack travel mm	:	7.85
Rated speed rpm	:	1445
Tolerance 1/min	:	+ 5
rack travel mm	:	4.00
Rated speed rpm	:	1520
Tolerance 1/min	:	+ 15
rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	1650

LOW IDLE

control lever position degree	:	70.0
tolerance degree	:	+ 4.0

Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 5.00

#### Testing:

Rated speed rpm : 100  
CRT mm min. : > 6.50

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 8.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 7.85  
Rated speed rpm : 1445  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.03.95  
Test oil : ISO 4113

Combination No. : 0401846992

Injection pump  
Pump designation : PE6P110A320RS3266  
EP type number : 0411816777

Governor  
Governor design. : RQV300...1100PA1182  
Governor no. : 0421814110

Cust. part No. : 11030875 P03 v.02.95

Customer-spec. information  
Customer : VME  
Motor : TD63KBE LAD. L90  
Power KW : 115.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413046

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.45  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 12.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : + 3.0

Spreed  
Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.51  
Tolerance mm : + 0.25

Rated speed rpm : 1172  
guide sleeve  
travel mm : 8.69  
Tolerance mm : + 0.25

Rated speed rpm : 822  
guide sleeve  
travel mm : 5.40  
Tolerance mm : + 0.25

Rated speed rpm : 356  
guide sleeve  
travel mm : 1.99  
Tolerance mm : + 0.25

Rated speed rpm : 406  
guide sleeve  
travel mm : 2.42  
Tolerance mm : + 0.25

Rated speed rpm : 510  
guide sleeve  
travel mm : 3.11  
Tolerance mm : + 0.25

Rated speed rpm : 1390  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1240

Rack travel in mm : 11.00  
Tolerance mm : + 2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm3/1000 strokes : 140.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 0.0  
tolerance degree : + 4.0

control lever  
position degree : 116.0  
tolerance degree : + 4.0

rack travel mm : 11.00  
Rated speed rpm : 1160  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1250  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1330

##### LOW IDLE

control lever  
position degree : 84.0  
tolerance degree : + 4.0

control lever  
position degree : 18.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 5.80  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 200  
CRT mm min. :  $>$  8.00

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 370

---

#### TORQUE CONTROL

Rated speed rpm : 1025  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 625  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 820  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 625  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 625  
Pressure hPa : 1500  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 625  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 625

Pressure hPa : 760  
rack travel mm : 2.60  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 80  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  220  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 625  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 2.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 625  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 89.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 103.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  14.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.03.95  
Test oil : ISO 4113

Combination No. : 0402648947C

Injection pump  
Pump designation : PE8P120A320LS7859  
EP type number : 0412628869

Governor  
Governor design. : RQ300/950PA1032-12  
Governor no. : 0421801741

Cust. part No. : 0230749602

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 320.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.00  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.10  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.72  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1005  
guide sleeve  
travel mm : 6.34  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 451

guide sleeve  
travel mm : 4.76  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 580  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1190  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 97.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 14.00  
Rated speed rpm : 998  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1090  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1200

---

## LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

### Testing:

Rated speed rpm : 300  
rack travel mm : 6.10  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 430  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 200  
CRT mm min. :  $>$  9.00

---

## TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.05

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.05

### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.10  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400

Pressure hPa : 250  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 550

rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.15

---

## START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $>$  220  
Check  
speed 1/min :  $>$  240

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 550  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

## BREAKAWAY

Rack travel in mm : 14.00  
Rated speed rpm : 998  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.10  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.03.95  
Test oil : ISO 4113

Combination No. : 0402648953B

Injection pump  
Pump designation : PE8P120A320LS7859  
EP type number : 0412628869

Governor  
Governor design. : RQV300...950PA1033  
: -10  
Governor no. : 0421814040

Cust. part No. : 0230749702

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 320.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

N20

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 0.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.00



Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.10  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.29  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1009  
guide sleeve  
travel mm : 8.55  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 567  
guide sleeve  
travel mm : 4.66  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 617  
guide sleeve  
travel mm : 5.23  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 780  
guide sleeve  
travel mm : 6.31  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1092  
guide sleeve  
travel mm : 10.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1190  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1035

Rack travel in mm : 14.00  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 122.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 14.00  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1090  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1200

---

#### LOW IDLE

control lever  
position degree : 83.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 6.10  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 430  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 200

CRT mm min. :  $>$  9.00

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.10

Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400

Pressure hPa : 250  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 550  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm :  $>$  100

Check  
speed 1/min :  $>$  80

Rated speed rpm :  $<$  220

Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 550

Rated speed rpm : 50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5

Aneroid pressure  
hPa : 1000

Rated speed rpm : 950

Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 14.00  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.10  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.03.95  
Test oil : ISO 4113

Combination No. : 0402676824

Injection pump  
Pump designation : PE6P120A320RS7365  
EP type number : 0412626940

Governor  
Governor design. : RSV300...900P1A594  
: -1  
Governor no. : 0421833477

Cust. part No. : 11031889 P02 v.02.95

Customer-spec. information  
Customer : VME  
Motor : TD 122 KIE  
Power KW : 284.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413078

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1688901103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

N24

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 10.70  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 297.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

---

control lever  
position degree : - 3  
Rated speed rpm : 800

---

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

---

governor spring  
pre-tension  
click setting x : 6.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

---

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500

---

N25

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 297.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

##### RATED SPEED

---

control lever  
position degree : 58.0  
tolerance degree :  $\pm$  4.0

---

control lever  
position degree : 108.0  
tolerance degree :  $\pm$  4.0

---

rack travel mm : 9.70  
Rated speed rpm : 935  
Tolerance 1/min :  $\pm$  5

---

rack travel mm : 4.00  
Rated speed rpm : 1005  
Tolerance 1/min :  $\pm$  15

---

rack travel mm : 0.80  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1100

---

##### LOW IDLE

---

control lever  
position degree : 82.0  
tolerance degree :  $\pm$  4.0

---

control lever  
position degree : 32.0  
tolerance degree :  $\pm$  4.0

---

##### Setting point w/out bumper spring

---

Rated speed rpm : 330  
rack travel mm : 3.40

---

##### Testing:

---

Rated speed rpm : 330  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.20

---

rack travel mm : 2.00

---

Rated speed rpm : 420  
Tolerance 1/min : + 30

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 10.30  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 10.70  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 7.50  
Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 850  
rack travel mm : 2.90  
Tolerance mm : + 0.20

Pressure hPa : 260  
rack travel mm : 0.25  
Tolerance mm : + 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 282.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 9.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

Aneroid pressure  
hPa : -

Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : 9.70  
Rated speed rpm : 935  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : + 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0